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Control Data Corp, Minneapolis, MN

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Three-dimensional velocity variances, autocorrelation functions, power spectra and diffusion coefficients are presented. Relationships showing an increase of vertical variance with decreasing atmospheric stability and with increased wind speed are illustrated. The autocorrelation functions of the velocities tend to be oscillatory, and problems of estimating Lagrangian integral time scales from them are discussed. Diffusion coefficients estimated from the power spectra ranged over more than two orders of magnitude with the horizontal diffusion coefficients generally larger than the vertical diffusion coefficients. While the vertical diffusion coefficient increases with decreasing atmospheric stability, the two horizontal diffusion coefficients show no clear relationship to atmospheric stability, wind speed or time-of-day.

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SECTION 1

INTRODUCTION

The demands of modern society require an increased understanding of the diffusive capabilities of the atmosphere. No longer is it possible to assume that the atmosphere can digest all we put into it without there being some ecological consequence. Predictions must be made concerning the environmental impact or effect of effluent sources such as stacks, highways or cities. The development of numerical transport and diffusion models is a necessary step if we are to realistically and safely utilize the atmosphere to disperse our wastes.

Diffusion occurs on all scales. If one assumes the appropriate time scale, the atmosphere can be considered turbulent, and eddy diffusion coefficients computed, from space scales of centimeters to hundreds of kilometers. Indeed, Hage, et al. (1966), have looked at stratospheric diffusion over time periods of many months by tracing radioactive debris from nuclear explosions.

Classically, however, most studies have centered on time scales of seconds to minutes and several hours to a few days. Small-scale Eulerian measurements can be made from towers, and quasi-Eulerian measurements can be made from aircraft. Tracking of smoke puffs allow a measure of diffusion in a Lagrangian reference frame. Larger scale diffusion has been investigated using upper air sounding data directly or by constructing geostrophic trajectories to estimate Lagrangian diffusion coefficients. Many of these methods and results have been surveyed and summarized by Bauer (1974), and Gage and Jasperson (1975).

The diffusive properties of the atmosphere on the mesoscale are the least well documented. These scales of order tens of minutes to hours and kilometers to tens of kilometers are the fundamental scales for models designed for cities. Quasi-horizontally floating super-pressured balloons

(tetroons) have been shown to provide first approximations to the three-dimensional atmospheric motion (e.g., Angell and Pack, 1961, and Hass, et al., 1967). Some experimental turbulence data on the mesoscale have been collected utilizing tetroons tracked by radar transponder systems (e.g., Angell and Pack, 1962, Angell, et al., 1961, and Sato, 1975). In these studies, tetroon height was determined with the aid of helicopters.

This report presents the results of turbulence data collected with the use of tetroons and the METRAC positioning system installed near St. Cloud, Minnesota. The METRAC system described by Gage and Jasperson (1974) allows accurate three-dimensional tracking of a lightweight expendable transmitter attached to the tetroons.

SECTION 2

SUMMARY AND CONCLUSIONS

A total of 45 tetroon flights were tracked by the METRAC positioning system. Time series of three-dimensional velocity were computed for 34 of these flights. The data, collected at many times of day and throughout a year, show a considerable range of variance. The magnitude of the RMS vertical velocities are dominated by the local tetroon height lapse rate for stable atmospheres. When the local lapse rate is near adiabatic, the magnitude of the RMS vertical velocities are apparently determined by other factors. For instance, a day-night stratification of the data produces two different relationships between the RMS vertical velocities and wind speed. In both cases, the vertical velocity variances increase with increased wind speed. However, for the daytime flights, when heat is being added at the surface and the mixed layer is better developed, the variance increases much more rapidly with wind speed than for nighttime flights.

Autocorrelation functions, spectra and diffusion coefficients were computed for the 34 successful flights, and they illustrate the complicated atmospheric structure. The autocorrelation functions tended to be oscillatory, thereby complicating the evaluation of the Lagrangian integral time scale. Therefore, the diffusion coefficients were estimated directly from the spectra.

The diffusion coefficients computed for each of the three velocity components range over more than two orders of magnitude. The horizontal diffusion coefficients are generally larger than the vertical diffusion coefficient. The vertical diffusion coefficient, like the vertical velocity variance, shows a relationship to the local lapse rate. The two horizontal diffusion coefficients show no clear relationship to the local atmospheric stability, wind speed, or time of day.

SECTION 3

RECOMMENDATIONS

The 34 flights presented in this report show one fact very clearly: the structure of the atmosphere is very complex. The scale depicted by these flights is one in which waves and turbulent eddies coexist. Even if one could compute a diffusion coefficient exactly, the data from a single flight would be of questionable utility in developing a useful model to explain and predict the diffusive quality of the atmosphere at any given time. One needs to work with averages and find parameters that group and separate data in meaningful ways.

With data already collected, more emphasis should be placed on data stratification. The day-night stratification presented in this report was a first attempt at data separation and showed systematic results. Classification of flights by whether or not they are in the mixed layer and surface layer observations which could quantify atmospheric heat input and the strength of convective activity would be useful. An evaluation of the stationarity of the variance statistics should be made to determine the desired length of data series. Shorter flights could be made at lower levels. A detailed case study look at several flights should be made to fully evaluate the influence of the periodic motion on the diffusion calculations.

Furthermore, additional tetroon turbulence measurements should be collected to provide a larger data base for stratification. With these flights, an effort should be made to obtain additional surface layer measurements and boundary layer profiles so that the turbulence data could be better classified.

SECTION 4

FLIGHT SUMMARY

A total of 45 super-pressured tetroon flights were made between November 18, 1976, and December 7, 1977. Of these, 34 flights were considered successful and were fully processed. The 11 remaining flights suffered from one or more of the following problems:

1. balloon failure,
2. data recording failure,

and/or 3. transmitter failure.

Table 1 presents the basic launch and flight statistics. The average heights of the flights ranged from 700 m to 1350 m with one flight at 2350 m. Flights were made throughout the year and at many different times of day. Wind direction varied over three quadrants for these 34 flights and flight level wind speed ranged from 1.5 m/s to 21.8 m/s. Flight duration over which turbulent statistics were computed ran from 2100 to 6000 seconds.

Figure 1 presents the two-dimensional flight trajectories with lines connecting the initial and final tetroon positions for which statistics were computed. Actual flight deviations from these lines were small. The four basic receivers used by the METRAC positioning system are denoted by X's, and the launch point was very near the central receiver. The flight numbers are noted near the end of each trajectory. Tracking distances ranged from approximately 10 km to 70 km.

TABLE 1. TETROON FLIGHT DATA

Flight	Date	Launch Time	Mean Flight Level	Flight Level Wind Dir/Speed	Data Sample Length
TF2	11/23/76	1153 CST	1010 m	257/ 5.7m/s	2800 s
3	11/23/76	1500	930	290/ 7.4	2720
4	12/ 1/76	1339	1080	315/11.6	2800
5	12/ 2/76	1002	940	24/ 2.2	3600
6	12/ 3/76	1213	970	316/11.4	2720
7	1/12/77	1203	810	273/ 6.9	2800
8	1/18/77	1253	1040	336/ 7.2	3040
9	1/25/77	1950	900	249/13.8	2720
11	2/18/77	1542	880	334/ 9.3	2800
12	2/27/77	1323	980	7/13.2	2720
14	8/11/77	1755	900	268/12.3	2100
16	8/16/77	1700	1070	294/ 7.1	5120
17	8/17/77	0454	1350	319/14.2	3520
19	9/20/77	1012	2350	255/ 3.6	6000
20	9/20/77	1457	1050	133/ 6.9	4000
21	9/20/77	2005	800	152/11.0	2720
22	9/21/77	0455	1000	171/ 6.5	3600
23	9/21/77	0847	1300	176/ 9.6	3400
24	9/27/77	1017	1150	332/12.5	3680
26	9/27/77	1610	1000	317/10.1	3600
28	9/28/77	0418	825	303/ 4.8	4000
29	9/28/77	0752	1050	241/ 5.3	5040
30	10/ 3/77	2047	900	209/10.6	3000
31	10/ 4/77	0357	700	238/ 8.5	3200
35	11/ 4/77	1247	1250	165/ 9.6	3600
36	11/15/77	0627	1050	266/ 5.7	3900
37	11/15/77	0956	1150	285/16.2	2720
38	11/15/77	1358	1150	246/16.7	2720
39	11/15/77	1634	1050	259/18.9	2420
41	11/16/77	0354	1200	298/21.8	2720
42	11/16/77	0655	1050	305/17.0	2720
43	12/ 7/77	0727	950	281/ 1.5	3200
44	12/ 7/77	1033	975	193/ 4.4	3900
45	12/ 7/77	1240	850	164/ 6.6	2800

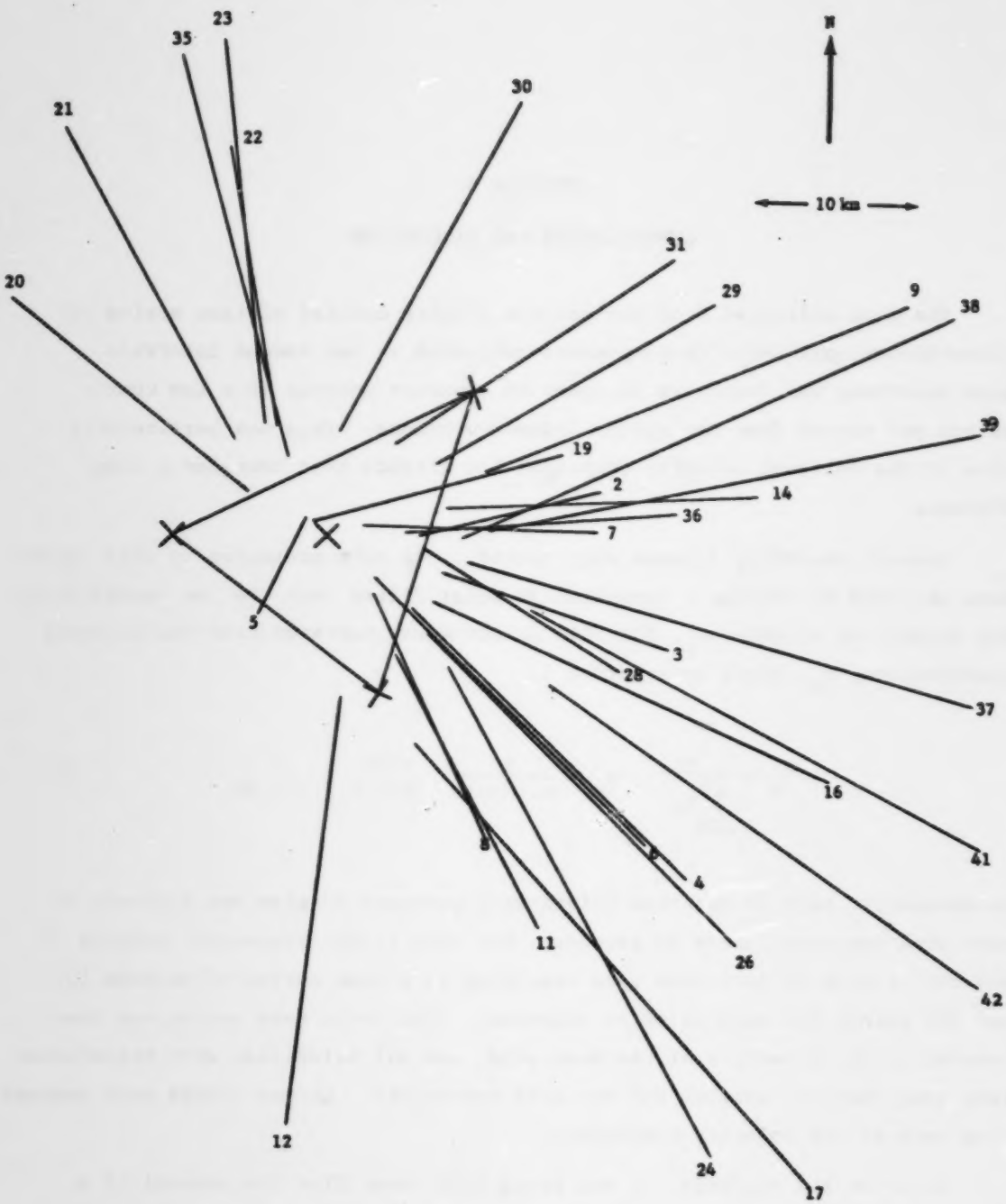

Figure 1. Tetroon trajectories. Flight number is given near the end of each trajectory. The basic four tracking system receivers are denoted by X's. Tetroons were launched from near the central receiver.

SECTION 5

COMPUTATIONS AND DISCUSSION

The data collected from the tetroon flights consist of time series of three-dimensional velocity components evaluated at one second intervals. Some smoothing was necessary in order to separate motions of a few centimeters per second from any system induced variance. This was particularly true of the vertical velocity component for flights that traveled a long distance.

Several smoothing schemes were tested. The data presented in this report were smoothed by passing a symmetric 20-point filter over the one second data. The normalized weights, C_m, for this filter were generated from the binomial coefficients, b_m, given by Equation 1.

$$C_m = \frac{b_m}{\sum_{m=0}^{20} b_m} \; ; \; b_m = \frac{N!}{m!(N-m)!} \quad \begin{matrix} N=20 \\ m=0,1,2,\ldots,20 \end{matrix} \tag{1}$$

Subsequently, each 20 smoothed points were averaged to give one estimate of each wind component every 20 seconds. For each flight processed, between 35 and 100 minutes of data were used resulting in a time series of between 105 and 300 points for each velocity component. The coordinate system was then rotated in the direction of the mean wind, and all velocities were transformed into longitudinal, lateral and vertical components. Linear trends were removed from each of the velocity components.

Later in the analysis, it was found that even after the removal of a linear trend, there was still considerable energy remaining in the low frequency, long period components of the velocity time series. This energy was removed by utilizing time-frequency convolution theory (e.g., see Jenkins

and Watts, 1968; or Lathi, 1968) and generating a new filtered time series y(t) given by

$$y(t) = \int_{-\infty}^{\infty} Y(f) e^{j2\pi ft} df. \qquad (2)$$

Y(f) is derived by multiplication of the frequency filter H(f) and the Fourier transform of the original data series:

$$Y(f) = H(f)\, X(f). \qquad (3)$$

X(f) is given by

$$X(f) = \int_{-\infty}^{\infty} X(t) e^{-j2\pi ft} dt \qquad (4)$$

where X(t) is the original data series. H(f) was defined to be zero for the mean and fundamental frequency and to be unity for all other frequencies.

VARIANCES

Perhaps the easiest variables to compute from the component velocity fluctuations are the variances. The longitudinal, lateral and vertical component variances are presented in Table 2 along with the estimated environmental lapse rate at the tetroon float level and the average environmental lapse rate from the surface to the float level. The lapse rates were taken from the temperature profiles of the St. Cloud National Weather Service soundings. These soundings are taken daily at approximately 0500 and 1700 CST. In some cases the lapse rates were difficult or impossible to reliably estimate due to the proximity of a significant level, and hence a change in lapse rate at the tetroon flight level, or due to time differences between the soundings and the tetroon flights. In these instances, no lapse rate was computed. Positive lapse rates given in Table 2 represent a decrease of temperature with height. The dry adiabatic lapse rate is 1.00 ^{o}C/100m.

The variances of each of the velocity components vary over approximately two orders of magnitude. The variances of the longitudinal and lateral components often tend to be comparable in size though the longitudinal component is larger on the average. The vertical variance tends to be smaller than the horizontal variances.

TABLE 2. STABILITY AND VARIANCES

Flight	Lapse Rate a	Lapse Rate b	Variances Longitudinal	Variances Lateral	Variances Vertical
			m^2/s^2	m^2/s^2	m^2/s^2
TF2	.60°C/100m	0.1°C/100m	.1562	.1604	.0241
3	.60	0.1	.1335	.1211	.0517
4	.46	0.6	.4118	.1989	.1531
5	-.11	-.5	.0283	.0440	.0037
6	-.10	-1.8	.2572	.1297	.0204
7	-1.11	-.7	.0064	.0715	.0153
8	-.87	0.3	.1336	.1355	.0231
9	.89	0.8	.2079	.0564	.3795
11	1.02	0.7	.1547	.2200	.0594
12	.71	0.6	.0538	.0905	.3278
14	1.16	0.9	.0349	.0130	.0411
16	1.17	0.9	.1424	.0660	.0553
17	.33	---	.0393	.0318	.0277
19	.32	0.6	.0323	.0041	.0045
20	.67	0.1	.0297	.0434	.0210
21	.62	-.2	.0188	.0403	.0284
22	-.40	-.6	.0231	.0175	.0091
23	-.15	0.5	.0628	.0395	.0369
24	1.04	1.0	1.2902	.3060	.5396
26	1.10	0.9	.0531	.0636	.1320
28	-.85	0.7	.0052	.0060	.0106
29	-.67	0.9	.0423	.0270	.0066
30	1.00	0.9	.0057	.0125	.0308
31	-.86	0.7	.0318	.0920	.0522
35	.08	---	.0406	.0459	.0407
36	-.10	-1.0	.0932	.0079	.0498
37	.00	---	.1247	.0402	.0353
38	.26	---	.1974	.1320	.0531
39	.48	0.4	.1903	.0447	.1527
41	.33	0.9	.1102	.0612	.0620
42	.28	0.9	.0116	.0482	.0566
43	-.63	-.3	.0248	.0415	.0038
44	-.19	-.3	.0339	.0210	.0072
45	-.24	-.2	.0705	.0277	.0366

a Average lapse rate between the surface and tetroon float level.

b Lapse rate at the tetroon float level.

One would expect the intensity of the vertical variance to be dependent upon the atmospheric stability. Figure 2 presents the RMS vertical velocity deviation as a function of the lapse rate at the tetroon float altitude. It can be seen that there is, in fact, a tendency for increased variance and scatter with increased float altitude lapse rate. This implies that, while the local lapse rate dominates the vertical turbulent intensity in a stable layer, other factors such as the presence of convection can act to enhance the turbulent intensity in a less stable layer. The curve is similar to one presented by Hass, et al. (1967), and Sato (1975).

One might also expect that there would be an increase in the vertical velocity variance associated with an increase in wind speed. A plot of the RMS vertical velocities versus horizontal wind speed did not, at first glance, show any consistent pattern. Including environmental lapse rates only confused the picture more. However, if one stratifies the data by time of day (day versus night), a pattern does seem to emerge.

Figure 3 presents a plot of horizontal wind speed versus the RMS vertical velocity deviations. The data has been stratified into day (1000 - 1700 CST) and night (2000 - 0700 CST), and the estimated environmental lapse rates have been printed near the appropriate points. Two curves have been sketched to indicate the pattern of the day-night stratification. This figure indicates that, at least for wind speeds greater than 7 m/s, the time of day is of greater importance in determining the RMS fluctuations than is the float level lapse rate. This effect is likely due to the effectiveness of convection in transferring energy from the mean wind to turbulent eddies.

AUTOCORRELATIONS

Lagrangian autocorrelation functions were computed for each of the three velocity components of the 34 fully processed flights. These data are presented in the Appendix, and two examples are plotted in Figures 4 and 5.

One noteworthy feature of virtually all the autocorrelation functions is that they contain strong periodicities. These periodicities have time scales ranging from a few minutes to nearly half an hour. The dominant vertical periods tend to be shorter than the horizontal component periods. For some of the flights, the vertical component frequency compared favorably with the

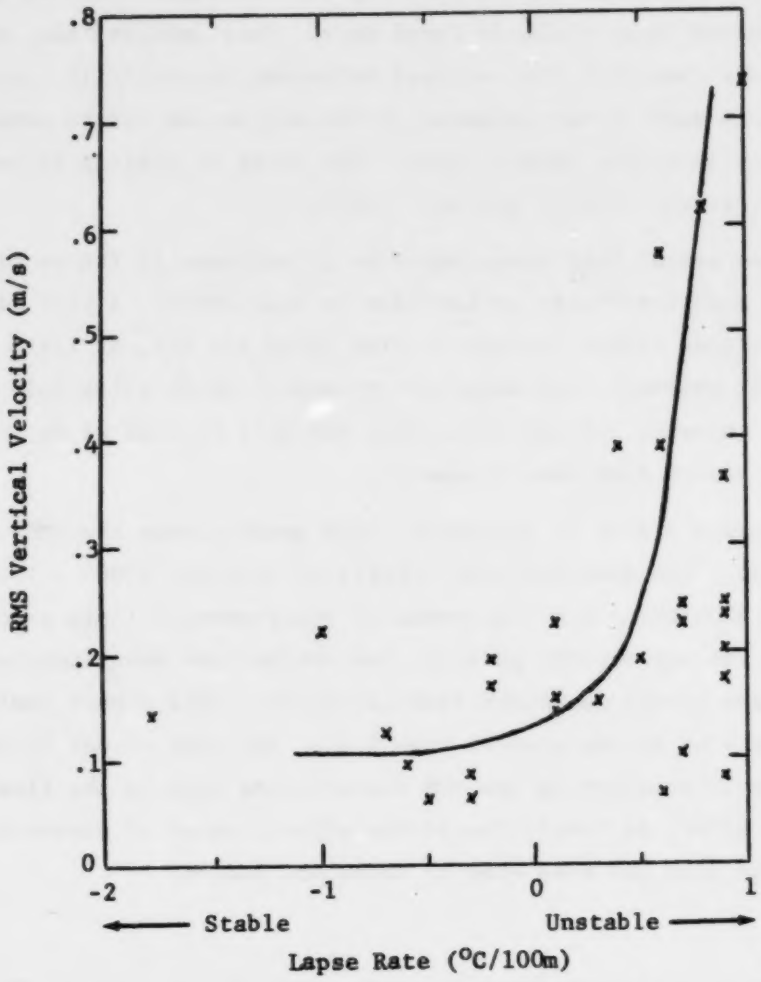

Figure 2. RMS vertical velocity versus environmental lapse rate.

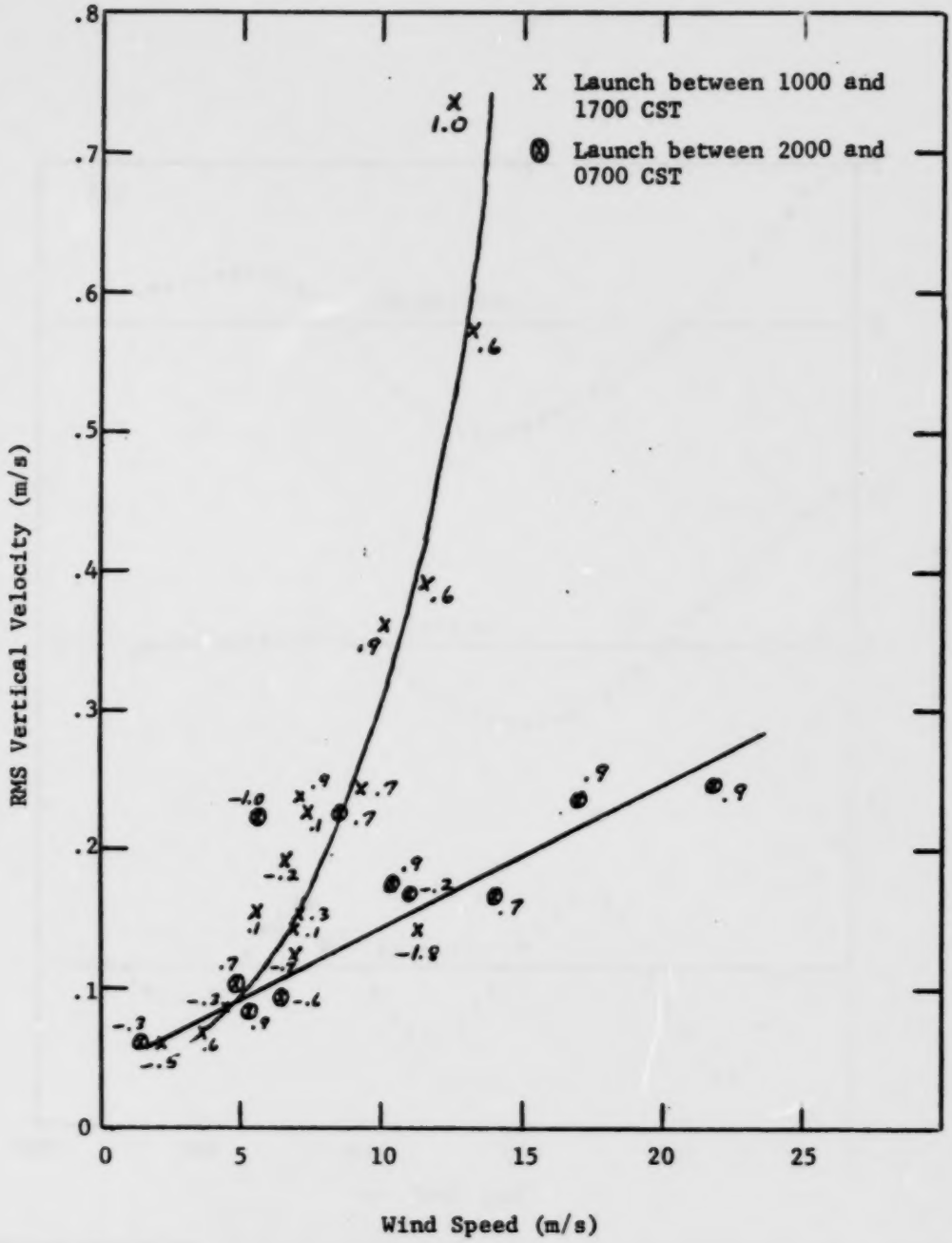

Figure 3. RMS vertical velocity versus horizontal wind speed for day and night time launches. Environmental lapse rate estimates are printed near each data point.

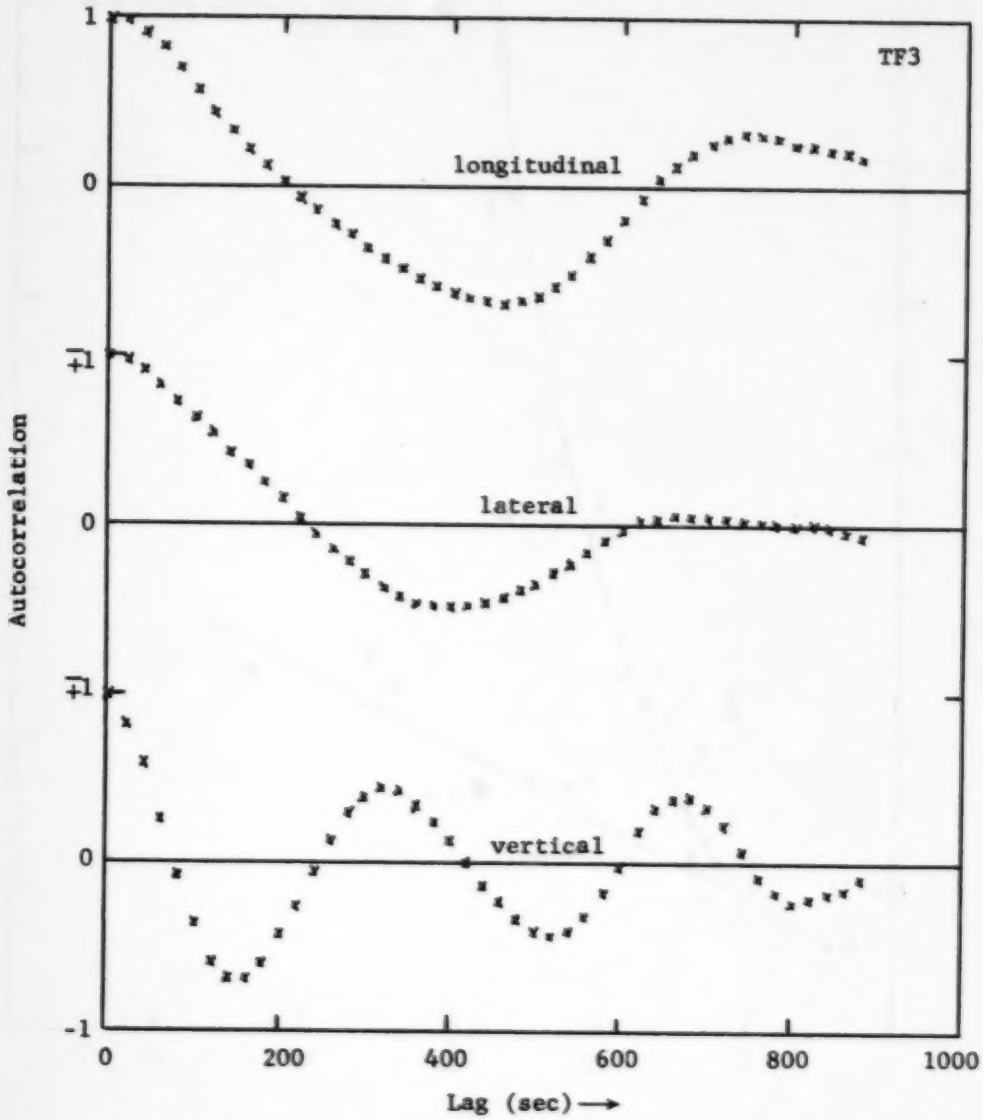

Figure 4. The longitudinal, lateral and vertical velocity autocorrelation functions for tetroon flight TF3.

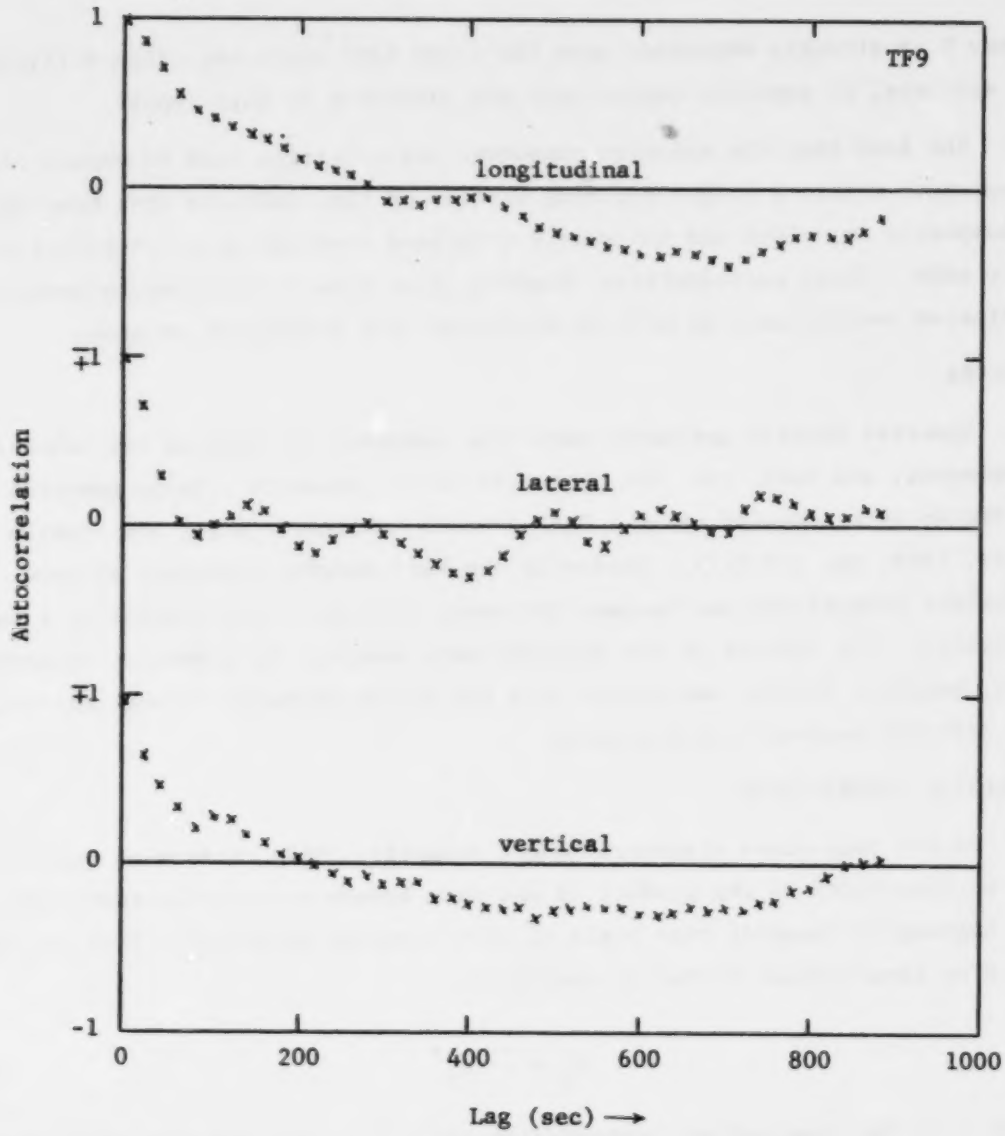

Figure 5. The longitudinal, lateral and vertical velocity autocorrelation functions for tetroon flight TF9.

Brunt-Väisälä frequency, η, which can be computed from the environmental temperature and stability by

$$\eta = \left[\frac{g}{\theta}\frac{\partial\theta}{\partial z}\right]^{\frac{1}{2}} \tag{5}$$

Since η is strongly dependent upon the lapse rate which was often difficult to estimate, no explicit comparisons are presented in this report.

The fact that the velocity component periodicities tend to remain so consistent within a flight for long periods of time indicate that they are atmospheric in origin and not solely a balloon response to a transitory velocity eddy. These periodicities, however, give rise to problems in computing diffusion coefficients as will be discussed in a subsequent section.

SPECTRA

Spectral density estimates were also computed for each of the velocity components, and they, too, are presented in the Appendix. These spectral estimates were computed using a Fast Fourier transform (e.g., see Jenkins and Watts, 1969, pp. 313-317). Utilizing the Fast Fourier transform allowed efficient computation and maximum frequency resolution (equivalent to a harmonic analysis). The spectra in the Appendix were smoothed by a Hanning (quarter, half, quarter) filter, and values from the second harmonic through approximately the fiftieth harmonic are presented.

DIFFUSION COEFFICIENTS

As has been shown elsewhere (e.g., Pasquill, 1962), diffusion coefficients can be formulated as the product of the mean square velocity perturbations and the Lagrangian integral time scale of that velocity component. That is, for the x or longitudinal diffusion coefficient,

$$K_x = \overline{u^2}\, I_x^* \tag{6}$$

where u is the longitudinal perturbation and I_x^* is the limiting value of

$$I(T) = \int_o^T R_u(\tau)d\tau \tag{7}$$

where $R_u(\tau)$ is the Lagrangian autocorrelation function defined by

$$R_u(\tau) = \frac{\overline{u(\tau)\, u(t+\tau)}}{\overline{u^2}} \tag{8}$$

Physically, $\overline{u^2}$ represents the energy of the velocity fluctuations and I_x^* represents the Lagrangian scale size of the fluctuating eddies.

Unfortunately, these correlation functions discussed earlier in this section and presented in the Appendix do not tend to converge to a value I^* over the sample interval. One solution to the convergence problem which has been used successfully is to assume that the autocorrelation function can be approximated by a function which can be integrated from zero to infinity. Two functions used by Murgatroyd (1968) were

$$R_1 = e^{-\alpha t} \tag{9}$$

$$\text{and } R_2 = e^{-\beta t} \cos \gamma t.$$

In experiments with our data, a function of the form $R_3 = R_1 + R_2$ fit some of the correlation functions out to lag 30 to 50. In these cases, the integral was dominated by R_1 as the periodic component damped very slowly. In other cases, R_1 and R_2 did a poor job of fitting the correlation function.

Other experiments were made to digitally filter out the dominant periodic component of the autocorrelation functions. If one assumes that the strong periodic components were well defined atmospheric waves, the tetroon data can be separated into variance associated with waves and variance associated with "turbulence". Over the time scale of the data (say one to three hours), the wave component can be assumed to produce the meander of a plume while the turbulent component distributes or diffuses the material within the plume. It was found that by filtering out the dominant wave, the shape of the autocorrelation functions were significantly altered and tendencies for the functions to converge were improved. An example is presented in Figure 6. However, the somewhat arbitrary question of deciding how much of which waves to filter out of the data created a certain amount of uneasiness with this procedure.

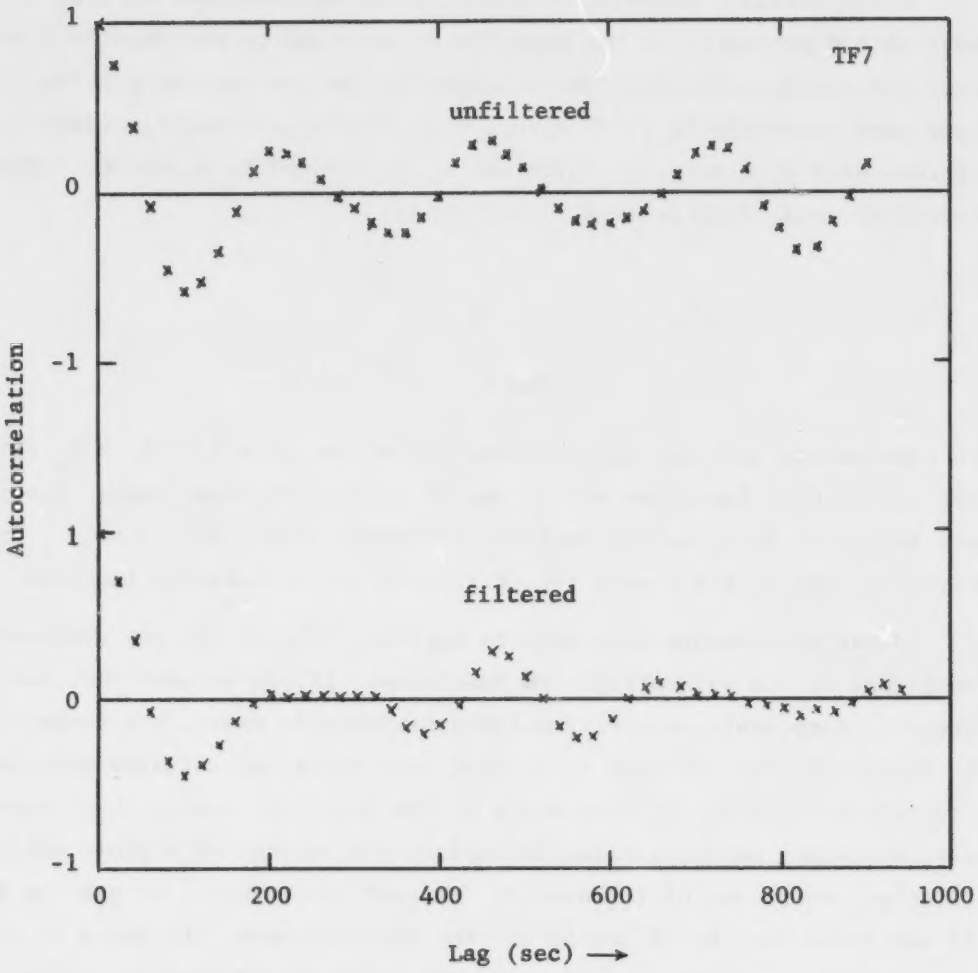

Figure 6. Example of a correlation function before and after digitally filtering out the dominant periodic component. This example is the vertical velocity component of tetroon flight TF7.

An alternative formulation for estimating the diffusion coefficient has been discussed by Hinze (1959). Because of the mathematical duality between spectra and correlation functions, the integral time scale in the x direction with $\overline{u^2}$ the associated velocity variance can be formulated as

$$I_x^* = \lim_{f \to o} \frac{1}{4\overline{u^2}} E_u(f) \tag{10}$$

where f is the frequency and E is the spectral energy density, i.e.,

$$\int_o^\infty E(f)\, df = \overline{u^2}. \tag{11}$$

Therefore,

$$K_x = \frac{1}{4} \lim_{f \to o} E_u(f) \tag{12}$$

This method was used in the computation of diffusion coefficients in this report. It is similar to the last method in that the presence of waves or isolated strong periodicities are recognized but not included as a part of the diffusion process. That is, the application of Equation 12 tends to ignore isolated spikes in the power spectrum.

Two examples of E(f) are presented in Figure 7. For most of the flight data, there appeared to be a limiting value of E(f). The working plots were made on a linear frequency scale and E(f) was extrapolated to zero frequency. The numbers are, therefore, representative for a time scale of up to one to three hours depending upon the data sample length. Local maxima such as that illustrated in the vertical component of TF22 were not considered in the estimate of the limit. In several flights, the slope of E(f) versus f changed. This is illustrated in the longitudinal data of TF39 where the change in slope is very near the Brunt-Väisälä frequency. This slope change may reflect the inclusion of waves in the diffusion process for periods greater than several minutes.

The Hinze formulation illustrates the importance of the low frequency eddies (i.e., as f→o) in determining diffusion. This also, of course, can be seen in the autocorrelation function formulation. The first few lags of the autocorrelation function are the most important in determining the integral time scale, and these lags are determined largely by the higher energy, low frequency components. For flights TF2 - TF12, diffusion coefficients were computed from both the power spectrum and the autocorrelation function and similar results were obtained. All of the computed diffusion coefficients are presented in Table 3. In a few instances, a limiting value for E(f) could not be determined. The values in parentheses for flights TF2 - TF12 are diffusion coefficients computed from the autocorrelation function.

Values of the integral time scale are not presented explicitly in this report because the diffusion coefficients were computed directly from the power spectra by Equation 12. The variances given by Equation 11 where E(f) is assumed to be a smooth function were not computed but could be approximated by the flight variances tabulated in Table 2.

The characteristics of the diffusion coefficients are, of course, very similar to the characteristics of the velocity componenent variances. All three components, the longitudinal, lateral and vertical, range over more than two orders of magnitude. The vertical diffusion coefficient, K_z, is inhibited by the local thermal stability as is shown in Figure 8. Six flights were determined to have taken place in the daytime convective boundary layer. The Pasquill stability index which relates stability to cloud cover, surface wind speed and sun angle was estimated for each of these flights. In this scheme A represents extremely unstable conditions, C represents slightly unstable and F represents moderately stable conditions (Gifford, 1968). Table 4 presents these results along with the vertical diffusion coefficients.

TABLE 4. PASQUILL STABILITY CLASSIFICATION

Flight	Pasquill Index	Vertical Diffusion Coefficient
TF11	D	7.9 $m^2/5$
14	D	3.5
16	C	6.3
24	B	20
26	C	37
30	E	4.2

For these flights within the daytime convective boundary layer, there appears to be a dramatic break in the value of the vertical diffusion coefficient near the C classification.

As shown in Figure 9, the lateral and longitudinal diffusion coefficients are approximately equal in only about one-third of the cases. In seven cases, the two horizontal diffusion coefficients differ by more than one order of magnitude (as shown by the dashed lines of Figure 9). The longitudinal diffusion coefficient tends to be larger than the lateral diffusion coefficient. Unlike the vertical diffusion coefficient, there is no obvious relationship between the values of either of the horizontal diffusion coefficients and either the float level or the average stability between the surface and the float level.

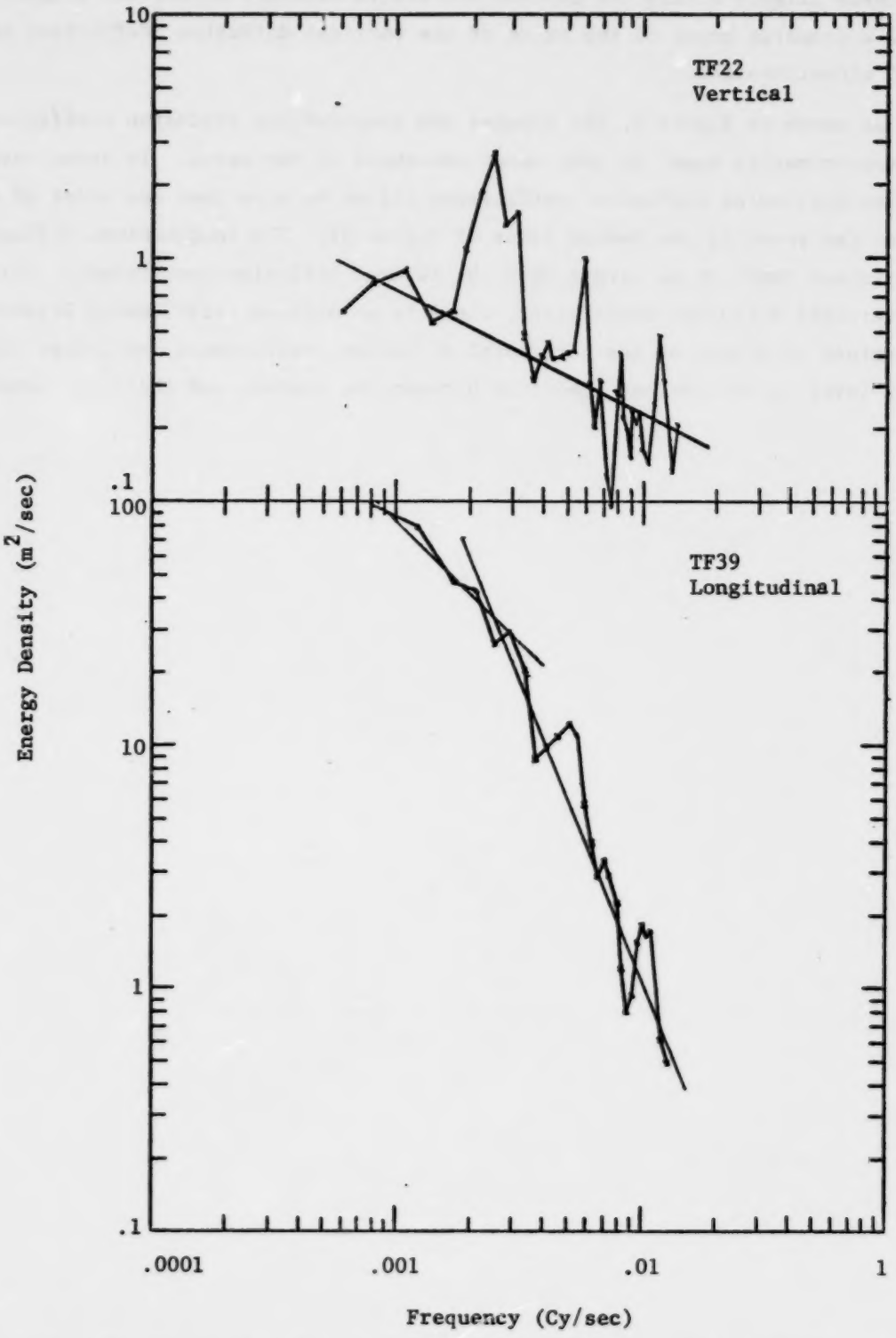

Figure 7. Energy spectra for the vertical velocity component of TF22 and the longitudinal velocity component of TF39.

TABLE 3. DIFFUSION COEFFICIENTS

Flight	Longitudinal		Lateral		Vertical	
	m^2/s		m^2/s		m^2/s	
TF2	60	(23)	80	(24)	0.8	(1.0)
3	49	(20)	25	(18)	0.9	(2.1)
4	100	(82)	25	(24)	14	(11)
5	8.9	(6.8)	5.2	(13)	0.1	(0.2)
6	44	(51)	44	(26)	0.7	(1.0)
7	1.1	(0.8)	10	(11)	0.4	(0.6)
8	28	(35)	22	(34)	2.0	(2.3)
9	30	(42)	2.1	(2.8)	50	(30)
11	56	(28)	56	(55)	7.9	(5.9)
12	7.9	(4.8)	2.4	(18)	1.6	(1.6)
14	5.6		0.5		3.5	
16	112		8.1		6.3	
17	6.6		14		1.7	
19	11.4		1.8		0.5	
20	2.9		10		0.5	
21	6.3		10		2.5	
22	5.7		2.6		0.3	
23	14		13		1.3	
24	337		16		20	
26	22		----		37	
28	1.6		0.7		----	
29	13		----		0.1	
30	0.4		1.9		4.2	
31	3.3		28		4.1	
35	2.9		4.2		0.6	
36	20		0.8		----	
37	10		14		1.5	
38	70		26		2.2	
39	40		3.6		1.7	
41	15		9.7		1.0	
42	0.7		8.9		1.1	
43	11		13		0.3	
44	12		3.1		0.4	
45	13		----		2.6	

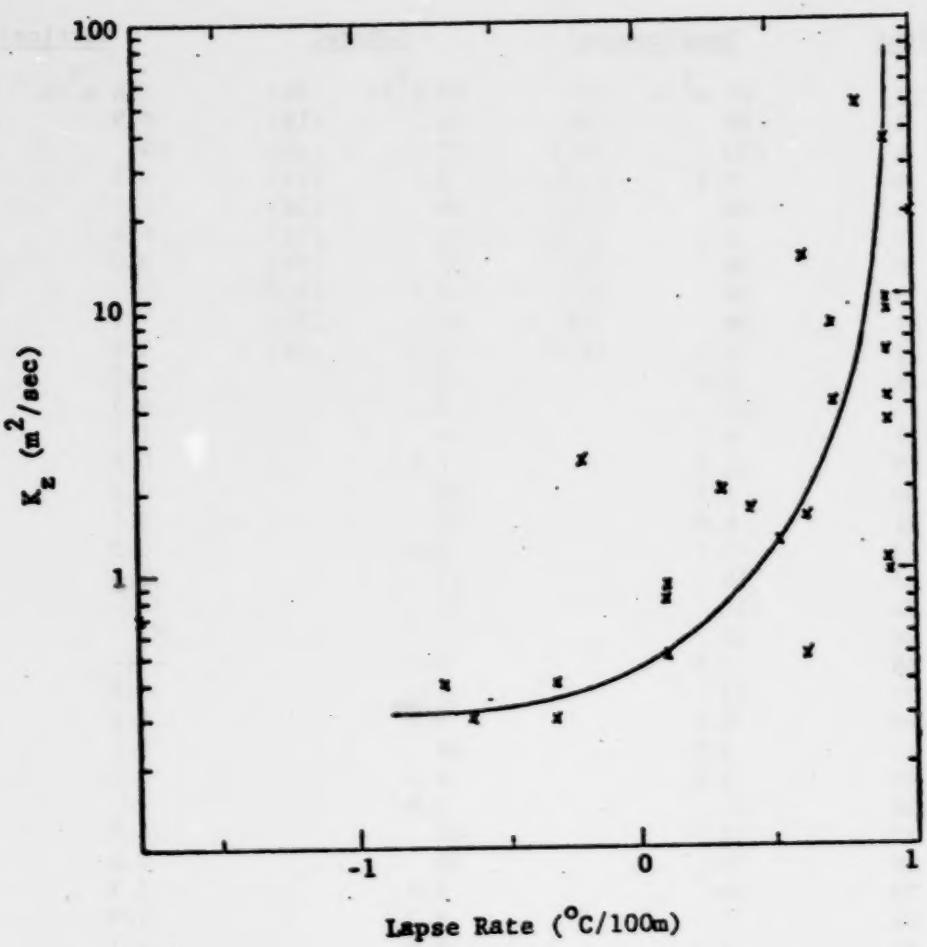

Figure 8. Vertical diffusion coefficient, Kz, versus environmental lapse rate.

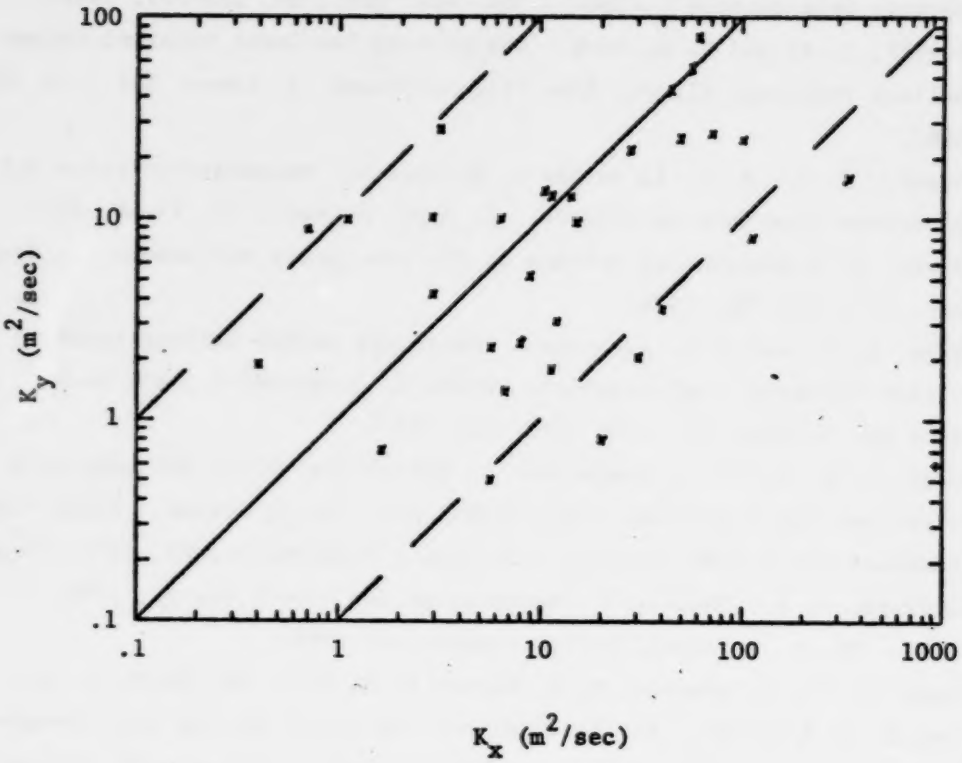

Figure 9. Lateral diffusion coefficient, K_y, versus the longitudinal diffusion coefficient, K_x. The solid line indicates equality between K_x and K_y while the dashed lines indicate one order of magnitude differences.

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APPENDIX

FLIGHT DATA STATISTICS

This appendix contains autocorrelations and spectral estimates for the longitudinal, lateral and vertical velocity perturbations. The dimensions of the spectral estimates are in m^2/sec.

TETHOON FLIGHT 2
140 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.98	1	.98	1	.80
2	.96	2	.94	2	.55
3	.84	3	.88	3	.23
4	.79	4	.80	4	-.11
5	.69	5	.70	5	-.29
6	.57	6	.59	6	-.43
7	.44	7	.47	7	-.48
8	.30	8	.33	8	-.45
9	.15	9	.20	9	-.37
10	.00	10	.07	10	-.20
11	-.14	11	-.06	11	-.04
12	-.26	12	-.18	12	.15
13	-.36	13	-.29	13	.31
14	-.48	14	-.39	14	.36
15	-.57	15	-.48	15	.38
16	-.64	16	-.56	16	.29
17	-.71	17	-.63	17	.16
18	-.76	18	-.69	18	.03
19	-.80	19	-.74	19	-.13
20	-.82	20	-.79	20	-.24
21	-.84	21	-.82	21	-.31
22	-.83	22	-.84	22	-.36
23	-.81	23	-.85	23	-.35
24	-.78	24	-.83	24	-.32
25	-.73	25	-.81	25	-.26
26	-.66	26	-.76	26	-.15
27	-.59	27	-.70	27	-.07
28	-.50	28	-.63	28	.05
29	-.41	29	-.54	29	.11
30	-.31	30	-.44	30	.14
31	-.21	31	-.34	31	.13
32	-.10	32	-.24	32	.06
33	.00	33	-.14	33	.06
34	.11	34	-.03	34	.03
35	.20	35	.07	35	.01
36	.29	36	.16	36	.03
37	.37	37	.26	37	-.05
38	.45	38	.34	38	-.10
39	.51	39	.42	39	-.14
40	.57	40	.48	40	-.21
41	.61	41	.53	41	-.13
42	.64	42	.57	42	-.09
43	.66	43	.60	43	-.01
44	.67	44	.62	44	.06
45	.66	45	.63	45	.10

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.57	129.89	135.77	2.87
3.86	203.60	149.09	2.47
5.14	65.98	63.68	2.13
6.43	27.58	18.33	1.07
7.71	13.53	9.23	.71
9.00	6.43	5.84	1.54
10.29	2.80	2.67	5.02
11.57	2.83	2.84	15.07
12.86	2.66	2.83	8.18
14.14	1.62	1.43	4.25
15.43	.71	1.41	3.64
16.71	.54	1.34	1.69
18.00	.44	2.12	1.10
19.29	.70	1.24	1.41
20.57	.40	.85	.94
21.86	.64	.80	.65
23.14	.63	1.29	.84
24.43	.44	.95	.71
25.71	.51	.78	1.02
27.00	.28	.92	.41
28.29	.20	.96	.53
29.57	.23	.85	.65
30.86	.20	.60	.38
32.14	.15	.57	.13
33.43	.11	.45	.11
34.71	.14	.41	.16
36.00	.13	.26	.06
37.29	.17	.29	.07
38.57	.09	.32	.04
39.86	.10	.27	.06
41.14	.16	.24	.05
42.43	.11	.23	.08
43.71	.07	.21	.02
45.00	.10	.18	.01
46.29	.05	.28	.02
47.57	.10	.31	.03
48.86	.18	.27	.07
50.14	.09	.22	.05
51.43	.10	.21	.02
52.71	.12	.19	.03
54.00	.09	.17	.04
55.29	.06	.17	.09
56.57	.12	.17	.15
57.86	.11	.13	.08
59.14	.06	.13	.19
60.43	.10	.17	.25
61.71	.10	.13	.09
63.00	.08	.12	.05
64.29	.15	.11	.04
65.57	.10	.11	.19

TETROON FLIGHT 3
136 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.98	1	.98	1	.82
2	.91	2	.92	2	.60
3	.82	3	.84	3	.28
4	.70	4	.75	4	-.05
5	.58	5	.65	5	-.34
6	.45	6	.56	6	-.56
7	.34	7	.46	7	-.68
8	.23	8	.37	8	-.68
9	.13	9	.27	9	-.59
10	.04	10	.17	10	-.41
11	-.05	11	.06	11	-.24
12	-.13	12	-.04	12	-.03
13	-.21	13	-.13	13	.16
14	-.28	14	-.21	14	.31
15	-.36	15	-.29	15	.40
16	-.42	16	-.36	16	.45
17	-.48	17	-.41	17	.43
18	-.54	18	-.45	18	.36
19	-.59	19	-.47	19	.26
20	-.63	20	-.47	20	.13
21	-.66	21	-.46	21	.00
22	-.68	22	-.44	22	-.14
23	-.69	23	-.41	23	-.22
24	-.67	24	-.37	24	-.32
25	-.64	25	-.33	25	-.40
26	-.58	26	-.27	26	-.42
27	-.51	27	-.21	27	-.40
28	-.41	28	-.15	28	-.31
29	-.31	29	-.08	29	-.17
30	-.19	30	-.02	30	.00
31	-.06	31	.02	31	.20
32	.03	32	.05	32	.34
33	.13	33	.06	33	.39
34	.20	34	.06	34	.40
35	.26	35	.05	35	.34
36	.30	36	.04	36	.23
37	.32	37	.02	37	.08
38	.32	38	.01	38	-.06
39	.30	39	.00	39	-.16
40	.26	40	.00	40	-.22
41	.25	41	-.00	41	-.20
42	.23	42	-.01	42	-.14
43	.21	43	-.02	43	-.15
44	.19	44	-.04	44	-.07

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	100.02	28.24	1.87
3.97	79.19	34.62	3.27
5.29	55.51	60.74	2.58
6.62	21.99	36.75	2.14
7.94	14.79	13.19	7.42
9.26	10.28	6.98	21.12
10.59	25.66	7.50	28.52
11.91	9.55	8.74	13.93
13.24	4.57	5.63	12.17
14.56	2.73	2.92	8.65
15.88	2.10	4.21	9.23
17.21	1.51	5.04	4.95
18.53	1.34	2.80	2.02
19.85	1.37	1.95	2.62
21.18	.65	2.60	3.25
22.50	.55	2.46	1.49
23.82	.56	2.52	1.29
25.15	.43	1.78	.60
26.47	.34	1.05	.44
27.79	.24	.87	.4[illegible]
29.12	.24	.59	.3[illegible]
30.44	.26	.51	.51
31.76	.26	.48	.14
33.09	.24	.36	.15
34.41	.22	.41	.32
35.74	.25	.33	.3[illegible]
37.06	.25	.30	.2[illegible]
38.38	.33	.26	.3[illegible]
39.71	.25	.28	.49
41.03	.30	.23	.27
42.35	.42	.17	.11
43.68	.27	.17	.27
45.00	.17	.18	.54
46.32	.28	.24	.2[illegible]
47.65	.26	.25	.31
48.97	.12	.28	.12
50.29	.13	.24	.1[illegible]
51.62	.21	.26	.37
52.94	.17	.22	.32
54.26	.11	.19	.27
55.59	.15	.21	.43
56.91	.12	.21	.15
58.24	.08	.21	.0[illegible]
59.56	.15	.20	.04
60.88	.19	.16	.0[illegible]
62.21	.11	.20	.17
63.53	.08	.19	.11
64.85	.15	.17	.5[illegible]
66.18	.14	.14	.1[illegible]
67.50	.08	.15	.2[illegible]

TETROON FLIGHT 4
140 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.97	1	.96	1	.85
2	.89	2	.86	2	.66
3	.78	3	.71	3	.41
4	.65	4	.54	4	.15
5	.52	5	.34	5	-.06
6	.39	6	.15	6	-.29
7	.26	7	-.02	7	-.41
8	.15	8	-.18	8	-.50
9	.07	9	-.30	9	-.48
10	.00	10	-.40	10	-.41
11	-.04	11	-.47	11	-.31
12	-.05	12	-.51	12	-.18
13	-.05	13	-.53	13	-.11
14	-.03	14	-.52	14	-.04
15	.00	15	-.48	15	.04
16	.05	16	-.43	16	.07
17	.08	17	-.36	17	.07
18	.10	18	-.28	18	.04
19	.09	19	-.19	19	-.03
20	.05	20	-.12	20	-.08
21	-.01	21	-.05	21	-.14
22	-.08	22	-.00	22	-.12
23	-.15	23	.03	23	-.11
24	-.22	24	.05	24	-.05
25	-.26	25	.05	25	.04
26	-.29	26	.04	26	.13
27	-.29	27	.03	27	.25
28	-.27	28	.02	28	.32
29	-.24	29	.01	29	.36
30	-.20	30	.01	30	.36
31	-.17	31	-.00	31	.31
32	-.14	32	-.02	32	.24
33	-.14	33	-.05	33	.13
34	-.15	34	-.08	34	.02
35	-.18	35	-.13	35	-.13
36	-.21	36	-.19	36	-.22
37	-.25	37	-.24	37	-.27
38	-.28	38	-.28	38	-.33
39	-.30	39	-.31	39	-.33
40	-.32	40	-.32	40	-.31
41	-.33	41	-.30	41	-.27
42	-.33	42	-.27	42	-.20
43	-.32	43	-.22	43	-.14
44	-.32	44	-.16	44	-.08
45	-.30	45	-.08	45	-.02

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.57	199.97	42.62	10.54
3.86	183.86	69.14	4.56
5.14	140.64	95.76	33.73
6.43	95.76	114.46	74.97
7.71	34.54	57.89	24.54
9.00	47.13	49.95	20.95
10.29	68.01	19.22	43.89
11.57	46.24	14.75	66.54
12.86	17.51	7.22	40.50
14.14	6.23	3.62	16.75
15.43	7.79	3.87	9.09
16.71	14.82	7.[illegible]	8.76
18.00	8.88	6.21	5.61
19.29	5.77	1.55	4.13
20.57	3.05	1.46	3.64
21.86	2.18	1.76	3.71
23.14	1.07	1.[illegible]	1.56
24.43	.56	.84	1.29
25.71	.75	.77	.62
27.00	1.17	.72	1.43
28.29	.81	.65	3.09
29.57	.82	.59	1.69
30.86	1.24	.39	1.73
32.14	1.50	.14	1.81
33.43	1.29	.07	1.27
34.71	1.11	.10	.81
36.00	.80	.14	.37
37.29	.77	.17	.41
38.57	.74	.05	.63
39.86	.49	.02	.44
41.14	.36	.12	.37
42.43	.27	.02	.53
43.71	.26	.03	.56
45.00	.24	.04	.46
46.29	.19	.05	.42
47.57	.26	.03	1.46
48.86	.35	.01	.66
50.14	.54	.11	.22
51.43	.49	.03	.17
52.71	.36	.04	.32
54.00	.48	.07	.40
55.29	.34	.12	.57
56.57	.36	.[illegible]	.39
57.86	.39	.08	.74
59.14	.27	.10	.47
60.43	.30	.11	.74
61.71	.29	.13	.28
63.00	.25	.15	.26
64.29	.26	.13	.32
65.57	.21	.[illegible]	.15

TETHOON FLIGHT 5
180 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	-.31	0	1.00	51	.33	0	1.00	51	.14
1	.98	52	-.28	1	.99	52	.30	1	.84	52	.27
2	.94	53	-.25	2	.95	53	.27	2	.52	53	.35
3	.88	54	-.22	3	.89	54	.23	3	.12	54	.38
4	.81	55	-.20	4	.82	55	.19	4	-.23	55	.32
5	.73	56	-.19	5	.73	56	.13	5	-.47	56	.19
6	.66	57	-.18	6	.64	57	.07	6	-.53	57	-.01
7	.58	58	-.18	7	.55	58	.03	7	-.44	58	-.22
8	.51	59	-.18	8	.46	59	-.02	8	-.26	59	-.39
9	.44			9	.36			9	-.07		
10	.38			10	.25			10	.09		
11	.32			11	.15			11	.15		
12	.27			12	.05			12	.13		
13	.22			13	-.05			13	.06		
14	.18			14	-.14			14	.00		
15	.14			15	-.22			15	-.03		
16	.11			16	-.31			16	-.00		
17	.08			17	-.38			17	.05		
18	.05			18	-.46			18	.11		
19	.01			19	-.53			19	.16		
20	-.03			20	-.58			20	.18		
21	-.09			21	-.62			21	.14		
22	-.15			22	-.64			22	.05		
23	-.21			23	-.63			23	-.09		
24	-.27			24	-.61			24	-.23		
25	-.34			25	-.58			25	-.34		
26	-.40			26	-.54			26	-.42		
27	-.45			27	-.50			27	-.43		
28	-.49			28	-.45			28	-.36		
29	-.53			29	-.41			29	-.18		
30	-.55			30	-.36			30	.03		
31	-.56			31	-.30			31	.23		
32	-.56			32	-.24			32	.38		
33	-.55			33	-.18			33	.43		
34	-.53			34	-.11			34	.37		
35	-.51			35	-.05			35	.24		
36	-.49			36	.02			36	.09		
37	-.47			37	.07			37	-.05		
38	-.45			38	.12			38	-.15		
39	-.44			39	.17			39	-.19		
40	-.43			40	.21			40	-.17		
41	-.42			41	.24			41	-.13		
42	-.42			42	.28			42	-.09		
43	-.43			43	.31			43	-.07		
44	-.43			44	.35			44	-.08		
45	-.43			45	.37			45	-.11		
46	-.43			46	.38			46	-.13		
47	-.42			47	.38			47	-.15		
48	-.40			48	.38			48	-.13		
49	-.37			49	.37			49	-.07		
50	-.34			50	.35			50	.02		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	V-PT
2.00	31.00	3.26	.29
3.00	12.15	7.59	.27
4.00	9.02	19.91	.29
5.00	4.62	17.59	.47
6.00	3.21	8.74	.34
7.00	1.87	7.09	.18
8.00	1.54	3.46	.12
9.00	2.38	2.97	.52
10.00	2.13	3.05	1.47
11.00	.72	2.25	1.34
12.00	.28	1.22	.92
13.00	.25	1.18	.61
14.00	.20	1.45	.33
15.00	.10	.92	.73
16.00	.14	.33	1.68
17.00	.32	.36	.97
18.00	.23	.44	.75
19.00	.17	.59	.43
20.00	.21	.83	.31
21.00	.10	.61	.35
22.00	.05	.38	.21
23.00	.02	.49	.13
24.00	.02	.37	.05
25.00	.03	.26	.03
26.00	.03	.19	.04
27.00	.02	.23	.02
28.00	.02	.20	.04
29.00	.03	.20	.03
30.00	.03	.19	.01
31.00	.01	.16	.01
32.00	.01	.16	.02
33.00	.01	.13	.03
34.00	.01	.10	.04
35.00	.01	.12	.03
36.00	.01	.15	.01
37.00	.01	.15	.01
38.00	.01	.11	.01
39.00	.01	.12	.00
40.00	.00	.12	.00
41.00	.00	.11	.01
42.00	.00	.09	.01
43.00	.01	.07	.01
44.00	.00	.07	.01
45.00	.00	.09	.01
46.00	.00	.07	.00
47.00	.00	.05	.01
48.00	.00	.07	.01
49.00	.00	.09	.01
50.00	.00	.10	.01
51.00	.00	.08	.00

TETROON FLIGHT 6
136 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.96	1	.97	1	.50
2	.89	2	.90	2	.28
3	.80	3	.83	3	.15
4	.70	4	.74	4	.03
5	.61	5	.67	5	-.15
6	.53	6	.61	6	-.10
7	.45	7	.56	7	.02
8	.37	8	.51	8	.14
9	.30	9	.47	9	.07
10	.20	10	.41	10	.12
11	.13	11	.34	11	.02
12	.07	12	.28	12	-.05
13	.02	13	.22	13	-.13
14	-.01	14	.17	14	-.16
15	-.03	15	.12	15	-.22
16	-.04	16	.08	16	-.09
17	-.06	17	.02	17	.01
18	-.08	18	-.05	18	-.03
19	-.12	19	-.13	19	.04
20	-.17	20	-.20	20	-.04
21	-.23	21	-.27	21	-.10
22	-.29	22	-.32	22	-.05
23	-.36	23	-.36	23	-.09
24	-.43	24	-.39	24	-.11
25	-.49	25	-.41	25	.00
26	-.52	26	-.43	26	.12
27	-.54	27	-.46	27	.06
28	-.56	28	-.50	28	-.10
29	-.58	29	-.55	29	-.03
30	-.61	30	-.58	30	-.02
31	-.63	31	-.61	31	-.14
32	-.65	32	-.62	32	-.22
33	-.65	33	-.62	33	-.14
34	-.64	34	-.62	34	-.13
35	-.61	35	-.61	35	-.15
36	-.58	36	-.60	36	-.11
37	-.55	37	-.58	37	-.03
38	-.53	38	-.57	38	.01
39	-.53	39	-.55	39	.08
40	-.52	40	-.54	40	.04
41	-.52	41	-.53	41	.11
42	-.52	42	-.52	42	.10
43	-.50	43	-.52	43	.14
44	-.47	44	-.51	44	.08

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	154.40	104.88	2.08
3.97	54.37	47.18	3.97
5.29	21.14	17.84	3.17
6.62	13.19	7.51	2.98
7.94	13.94	4.34	2.73
9.26	10.28	2.71	1.24
10.59	6.72	3.26	.81
11.91	6.01	3.85	.74
13.24	4.02	4.13	1.67
14.55	1.76	1.81	1.46
15.88	1.87	.76	1.55
17.21	2.08	.68	2.74
18.53	2.20	1.20	1.65
19.85	2.81	1.42	2.64
21.18	2.48	1.54	2.87
22.50	1.47	.81	1.31
23.82	1.34	.64	.4
25.15	1.02	.31	.31
26.47	1.02	.20	.30
27.79	1.12	.16	.52
29.12	1.20	.10	.69
30.44	.69	.13	.29
31.76	.99	.30	.18
33.09	.54	.20	.20
34.41	.42	.07	.21
35.74	.39	.05	.22
37.06	.38	.06	.14
38.38	.30	.05	.12
39.71	.31	.12	.24
41.03	.27	.14	.55
42.35	.21	.14	.81
43.68	.23	.17	.47
45.00	.47	.10	.34
46.32	.35	.04	.67
47.65	.26	.05	.46
48.97	.23	.05	.63
50.29	.16	.08	.38
51.62	.17	.12	.34
52.94	.17	.11	.65
54.26	.19	.09	.96
55.59	.20	.06	.71
56.91	.20	.05	.31
58.24	.22	.04	.18
59.56	.35	.07	.07
60.88	.16	.10	.11
62.21	.18	.06	.24
63.53	.09	.08	.23
64.85	.09	.05	.36
66.18	.14	.03	.51
67.50	.26	.03	.29

TETROON FLIGHT 7
140 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.93	1	.95	1	.75
2	.77	2	.81	2	.38
3	.57	3	.63	3	-.08
4	.34	4	.41	4	-.44
5	.12	5	.19	5	-.59
6	-.07	6	-.03	6	-.53
7	-.23	7	-.21	7	-.33
8	-.35	8	-.35	8	-.10
9	-.43	9	-.44	9	.12
10	-.46	10	-.46	10	.24
11	-.45	11	-.45	11	.23
12	-.40	12	-.40	12	.18
13	-.34	13	-.32	13	.08
14	-.29	14	-.23	14	-.02
15	-.24	15	-.13	15	-.10
16	-.19	16	-.04	16	-.18
17	-.14	17	.04	17	-.24
18	-.07	18	.10	18	-.23
19	.01	19	.14	19	-.15
20	.08	20	.15	20	-.02
21	.14	21	.14	21	.17
22	.18	22	.09	22	.28
23	.21	23	.04	23	.30
24	.23	24	-.03	24	.21
25	.25	25	-.10	25	.13
26	.25	26	-.18	26	-.00
27	.24	27	-.26	27	-.11
28	.18	28	-.33	28	-.18
29	.09	29	-.38	29	-.20
30	-.02	30	-.41	30	-.19
31	-.11	31	-.42	31	-.16
32	-.18	32	-.42	32	-.09
33	-.22	33	-.41	33	-.01
34	-.24	34	-.40	34	.10
35	-.26	35	-.37	35	.23
36	-.28	36	-.34	36	.27
37	-.28	37	-.29	37	.24
38	-.28	38	-.23	38	.12
39	-.26	39	-.14	39	-.08
40	-.21	40	-.03	40	-.22
41	-.15	41	.11	41	-.34
42	-.09	42	.27	42	-.32
43	-.02	43	.43	43	-.18
44	.03	44	.59	44	-.01
45	.06	45	.71	45	.16

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.57	.89	10.05	.32
3.86	.41	13.54	.64
5.14	.97	6.58	1.12
6.43	2.49	9.97	1.29
7.71	3.08	15.67	.96
9.00	1.11	5.16	.74
10.29	1.11	5.71	1.44
11.57	.92	2.30	1.14
12.86	.72	2.24	1.28
14.14	.46	1.82	3.32
15.43	.41	2.01	5.35
16.71	.18	.99	4.38
18.00	.15	.65	2.17
19.29	.15	.77	1.56
20.57	.05	.33	2.44
21.86	.03	.41	2.69
23.14	.01	.30	1.74
24.43	.07	.16	.73
25.71	.15	.05	.45
27.00	.05	.12	.19
28.29	.03	.20	.14
29.57	.01	.11	.21
30.86	.01	.05	.17
32.14	.01	.03	.31
33.43	.02	.05	.54
34.71	.01	.10	.17
36.00	.01	.11	.14
37.29	.02	.05	.05
38.57	.01	.03	.01
39.86	.01	.01	.04
41.14	.00	.02	.12
42.43	.00	.02	.06
43.71	.00	.02	.07
45.00	.00	.02	.07
46.29	.01	.02	.03
47.57	.01	.04	.02
48.86	.01	.05	.04
50.14	.01	.04	.04
51.43	.00	.03	.07
52.71	.00	.03	.10
54.00	.01	.02	.07
55.29	.00	.03	.14
56.57	.01	.04	.16
57.86	.02	.03	.05
59.14	.01	.03	.07
60.43	.00	.02	.07
61.71	.00	.02	.11
63.00	.00	.03	.04
64.29	.00	.02	.02
65.57	.00	.03	.04

TETROON FLIGHT 8
152 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL		LATERAL		VERTICAL	
LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	0	1.00	0	1.00
1	.97	1	.98	1	.84
2	.94	2	.93	2	.71
3	.89	3	.85	3	.49
4	.83	4	.76	4	.25
5	.76	5	.65	5	.10
6	.68	6	.54	6	-.10
7	.60	7	.43	7	-.14
8	.51	8	.31	8	-.15
9	.42	9	.19	9	-.06
10	.33	10	.08	10	.05
11	.23	11	-.03	11	.17
12	.14	12	-.14	12	.27
13	.06	13	-.23	13	.31
14	-.01	14	-.31	14	.27
15	-.06	15	-.39	15	.20
16	-.11	16	-.44	16	.08
17	-.14	17	-.48	17	-.04
18	-.16	18	-.50	18	-.19
19	-.17	19	-.50	19	-.30
20	-.16	20	-.49	20	-.36
21	-.15	21	-.46	21	-.36
22	-.13	22	-.41	22	-.27
23	-.10	23	-.35	23	-.18
24	-.07	24	-.29	24	-.06
25	-.05	25	-.23	25	.02
26	-.03	26	-.17	26	.02
27	-.01	27	-.11	27	.01
28	-.00	28	-.06	28	-.02
29	-.00	29	-.02	29	-.08
30	-.01	30	.01	30	-.13
31	-.02	31	.03	31	-.17
32	-.03	32	.03	32	-.22
33	-.06	33	.03	33	-.19
34	-.08	34	.03	34	-.12
35	-.11	35	.02	35	-.03
36	-.15	36	.00	36	.06
37	-.18	37	-.01	37	.10
38	-.22	38	-.02	38	.10
39	-.25	39	-.04	39	.07
40	-.28	40	-.05	40	.04
41	-.31	41	-.06	41	-.06
42	-.34	42	-.08	42	-.12
43	-.37	43	-.09	43	-.20
44	-.40	44	-.10	44	-.21
45	-.42	45	-.10	45	-.20
46	-.44	46	-.10	46	-.13
47	-.45	47	-.08	47	-.06
48	-.45	48	-.06	48	.00
49	-.45	49	-.03	49	.08

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.37	55.92	19.46	5.02
3.55	41.23	39.16	6.52
4.74	29.64	35.75	6.10
5.92	26.17	38.29	4.72
7.11	17.10	23.13	2.99
8.29	5.01	11.16	2.02
9.47	2.08	6.58	1.53
10.66	2.05	5.33	1.44
11.84	2.53	4.59	3.24
13.03	2.59	2.49	6.32
14.21	3.23	2.15	9.20
15.39	1.86	1.23	6.02
16.58	1.35	1.26	1.45
17.76	.59	.39	.59
18.95	.31	.24	.56
20.13	.18	.29	.35
21.32	.23	.32	.27
22.50	.36	.33	.51
23.68	.29	.31	.72
24.87	.25	.16	.36
26.05	.28	.20	.40
27.24	.13	.24	.32
28.42	.07	.33	.26
29.61	.06	.34	.17
30.79	.10	.35	.31
31.97	.14	.22	.29
33.16	.29	.17	.14
34.34	.34	.17	.27
35.53	.31	.15	.32
36.71	.23	.15	.14
37.89	.21	.08	.14
39.08	.09	.05	.14
40.26	.11	.06	.07
41.45	.10	.04	.07
42.63	.12	.05	.12
43.82	.14	.09	.17
45.00	.17	.08	.20
46.18	.12	.15	.14
47.37	.12	.10	.14
48.55	.07	.06	.07
49.74	.05	.08	.08
50.92	.08	.09	.11
52.11	.05	.08	.06
53.29	.06	.09	.12
54.47	.10	.06	.06
55.66	.09	.05	.05
56.84	.07	.04	.10
58.03	.07	.05	.11
59.21	.05	.05	.05
60.39	.06	.05	.05

TETROON FLIGHT 9
136 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.87	1	.71	1	.61
2	.70	2	.30	2	.48
3	.56	3	.03	3	.34
4	.46	4	-.06	4	.23
5	.41	5	.01	5	.30
6	.38	6	.08	6	.28
7	.34	7	.13	7	.18
8	.29	8	.10	8	.12
9	.23	9	-.01	9	.08
10	.18	10	-.11	10	.00
11	.15	11	-.14	11	.00
12	.12	12	-.07	12	-.05
13	.09	13	-.01	13	-.10
14	.02	14	.01	14	-.04
15	-.04	15	-.04	15	-.12
16	-.09	16	-.09	16	-.08
17	-.11	17	-.15	17	-.09
18	-.08	18	-.22	18	-.22
19	-.07	19	-.27	19	-.20
20	-.05	20	-.29	20	-.23
21	-.05	21	-.26	21	-.25
22	-.11	22	-.15	22	-.27
23	-.17	23	-.04	23	-.23
24	-.23	24	.06	24	-.32
25	-.27	25	.10	25	-.27
26	-.28	26	.02	26	-.26
27	-.30	27	-.08	27	-.23
28	-.33	28	-.10	28	-.24
29	-.35	29	.00	29	-.26
30	-.38	30	.09	30	-.30
31	-.39	31	.10	31	-.30
32	-.37	32	.07	32	-.29
33	-.39	33	.02	33	-.23
34	-.42	34	-.02	34	-.26
35	-.45	35	-.01	35	-.27
36	-.41	36	.11	36	-.28
37	-.36	37	.20	37	-.23
38	-.31	38	.19	38	-.21
39	-.28	39	.17	39	-.11
40	-.27	40	.10	40	-.14
41	-.28	41	.08	41	-.05
42	-.28	42	.09	42	.01
43	-.24	43	.12	43	.03
44	-.17	44	.11	44	.01

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	93.26	2.35	174.71
3.97	37.14	7.15	104.77
5.29	19.69	13.82	56.68
6.62	21.54	7.61	54.91
7.94	11.73	4.38	28.05
9.26	12.98	3.05	24.61
10.59	7.29	2.41	21.24
11.91	5.89	3.79	24.57
13.24	6.37	4.78	18.74
14.56	7.65	6.29	13.55
15.88	6.02	3.13	9.84
17.21	4.65	2.69	15.17
18.53	4.74	2.58	13.46
19.85	4.28	2.89	16.24
21.18	1.94	4.69	21.21
22.50	3.49	6.89	12.37
23.82	6.36	3.82	11.64
25.15	5.59	3.43	13.46
26.47	8.31	3.33	14.34
27.79	5.05	4.95	10.32
29.12	1.59	3.67	7.66
30.44	1.48	2.23	11.52
31.76	2.18	1.15	14.79
33.09	1.76	1.28	13.51
34.41	1.54	.48	11.32
35.74	.85	.56	5.61
37.06	.74	1.06	11.00
38.38	1.43	.28	4.64
39.71	1.08	.49	3.57
41.03	1.33	.81	2.82
42.35	1.56	1.24	2.21
43.68	.95	1.16	.74
45.00	.69	.50	.35
46.32	.49	.27	.62
47.65	.50	.35	1.62
48.97	.80	.48	1.01
50.29	.59	.21	1.14
51.62	.78	.21	2.52
52.94	.68	.21	4.39
54.26	1.05	.47	7.44
55.59	.41	.37	6.36
56.91	.51	.22	2.14
58.24	.65	.31	.59
59.56	.66	.13	1.96
60.88	1.01	.08	5.32
62.21	.35	.19	6.38
63.53	.20	.35	10.57
64.85	.25	.23	11.41
66.18	.18	.35	8.14
67.50	.63	.24	5.61

TETROON FLIGHT 11
140 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.94	1	.94	1	.86
2	.85	2	.85	2	.67
3	.79	3	.73	3	.50
4	.70	4	.62	4	.36
5	.62	5	.50	5	.22
6	.54	6	.39	6	.09
7	.46	7	.26	7	-.01
8	.39	8	.14	8	-.07
9	.31	9	.04	9	-.10
10	.22	10	-.03	10	-.11
11	.12	11	-.05	11	-.09
12	.02	12	-.06	12	-.08
13	-.05	13	-.04	13	-.07
14	-.16	14	.01	14	-.06
15	-.25	15	.05	15	-.04
16	-.33	16	.10	16	-.07
17	-.40	17	.14	17	-.12
18	-.46	18	.18	18	-.19
19	-.52	19	.21	19	-.26
20	-.55	20	.23	20	-.30
21	-.58	21	.25	21	-.35
22	-.56	22	.26	22	-.35
23	-.52	23	.25	23	-.31
24	-.48	24	.22	24	-.26
25	-.44	25	.16	25	-.22
26	-.39	26	.09	26	-.19
27	-.36	27	.00	27	-.17
28	-.33	28	-.10	28	-.14
29	-.30	29	-.20	29	-.12
30	-.28	30	-.29	30	-.14
31	-.26	31	-.37	31	-.15
32	-.24	32	-.47	32	-.16
33	-.21	33	-.54	33	-.17
34	-.17	34	-.59	34	-.18
35	-.13	35	-.64	35	-.18
36	-.08	36	-.66	36	-.22
37	-.06	37	-.66	37	-.26
38	-.05	38	-.66	38	-.27
39	-.03	39	-.63	39	-.22
40	-.02	40	-.59	40	-.14
41	-.03	41	-.53	41	-.13
42	-.03	42	-.47	42	-.15
43	-.04	43	-.40	43	-.16
44	-.05	44	-.34	44	-.15
45	-.05	45	-.26	45	-.13

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.57	119.49	99.92	21.24
3.86	93.22	32.56	12.59
5.14	84.70	13.73	13.00
6.43	30.48	24.54	14.12
7.71	9.43	54.92	7.01
9.00	2.99	35.09	4.01
10.29	.92	28.49	11.57
11.57	2.87	10.30	9.59
12.86	7.49	9.00	12.63
14.14	6.12	5.28	5.56
15.43	3.69	3.47	3.88
16.71	1.96	1.37	1.83
18.00	2.73	.64	1.22
19.29	3.51	.45	1.54
20.57	3.29	1.76	1.76
21.86	1.48	2.26	2.54
23.14	1.77	3.41	1.37
24.43	.95	1.76	1.22
25.71	.55	2.58	1.52
27.00	.43	2.00	1.61
28.29	.82	1.37	1.04
29.57	1.49	2.19	1.36
30.86	.77	.81	1.32
32.14	.45	.74	.92
33.43	.18	1.11	.81
34.71	.38	.81	1.32
36.00	.72	.38	1.14
37.29	.50	.34	.77
38.57	.62	.36	.51
39.86	.92	.67	.74
41.14	.70	.48	.65
42.43	.73	.43	.43
43.71	.67	.12	.84
45.00	.25	.25	.79
46.29	.24	.50	.32
47.57	.37	.67	.47
48.86	.50	.31	.64
50.14	.54	.10	.34
51.43	.25	.18	.44
52.71	.37	.38	.23
54.00	.70	.29	.34
55.29	.83	.30	.41
56.57	.27	.10	.22
57.86	.12	.14	.17
59.14	.12	.27	.21
60.43	.23	.30	.22
61.71	.40	.20	.34
63.00	.70	.35	.41
64.29	.43	.54	.14
65.57	.16	.29	.14

TETROON FLIGHT 12
136 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.89	1	.92	1	.86
2	.71	2	.73	2	.58
3	.46	3	.48	3	.22
4	.19	4	.19	4	-.14
5	-.03	5	-.07	5	-.45
6	-.22	6	-.26	6	-.69
7	-.34	7	-.36	7	-.80
8	-.37	8	-.37	8	-.78
9	-.35	9	-.31	9	-.69
10	-.29	10	-.19	10	-.51
11	-.16	11	-.07	11	-.30
12	-.08	12	.03	12	.2[illegible]
13	-.01	13	.09	13	.51
14	.01	14	.10	14	.61
15	.00	15	.06	15	.58
16	-.03	16	-.01	16	.46
17	-.08	17	-.09	17	.25
18	-.12	18	-.15	18	.05
19	-.15	19	-.20	19	-.13
20	-.16	20	-.22	20	-.27
21	-.15	21	-.22	21	-.35
22	-.14	22	-.20	22	-.37
23	-.10	23	-.16	23	-.31
24	-.07	24	-.12	24	-.21
25	-.03	25	-.09	25	-.08
26	.01	26	-.07	26	.04
27	.06	27	-.05	27	.15
28	.11	28	-.04	28	.22
29	.15	29	-.02	29	.25
30	.18	30	-.01	30	.22
31	.18	31	-.01	31	.14
32	.16	32	-.02	32	.03
33	.12	33	-.04	33	-.08
34	.07	34	-.08	34	-.17
35	-.00	35	-.14	35	-.24
36	-.09	36	-.19	36	-.25
37	-.19	37	-.21	37	-.23
38	-.27	38	-.19	38	-.18
39	-.33	39	-.13	39	-.06
40	-.35	40	-.03	40	.08
41	-.32	41	.10	41	.21
42	-.26	42	.23	42	.32
43	-.15	43	.35	43	.36
44	.00	44	.41	44	.34

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	10.48	8.28	5.42
3.97	10.07	8.77	4.99
5.29	6.96	8.53	8.66
6.62	13.67	5.27	4.63
7.94	15.05	8.33	34.94
9.26	9.06	8.50	81.46
10.59	16.06	6.91	124.[illegible]
11.91	16.51	14.11	22[illegible].52
13.24	7.98	8.05	10[illegible].98
14.56	9.41	5.71	9[illegible].96
15.[illegible]	4.14	8.14	66.85
17.21	2.36	2.29	69.57
18.53	1.42	.73	1 .43
19.85	.50	.51	6.24
21.18	.40	.37	2.[illegible]9
22.50	.52	.18	2.9[illegible]
23.82	.70	.[illegible]8	[illegible].29
25.15	.36	.[illegible]5	5.52
26.47	.50	.[illegible]6	3.85
27.79	.35	.19	[illegible].81
29.12	.44	.[illegible]2	4.44
30.44	.46	.16	[illegible].65
31.76	.42	.14	2.31
33.09	.18	.[illegible]9	2.26
34.41	.22	.[illegible]6	1.[illegible]4
35.74	.16	.19	2.[illegible]5
37.06	.13	.27	1.[illegible]2
38.38	.09	.19	1.11
39.71	.04	.09	1.[illegible]4
41.03	.03	.[illegible]2	1.11
42.35	.04	.04	1.31
43.68	.06	.03	.9[illegible]
45.00	.07	.[illegible]2	.3[illegible]
46.32	.04	.05	.37
47.65	.05	.11	.61
48.97	.06	.14	.71
50.29	.02	.13	.27
51.62	.07	.10	.31
52.94	.14	.11	.6[illegible]
54.26	.06	.13	.6[illegible]
55.59	.03	.08	.7[illegible]
56.91	.06	.05	.4[illegible]
58.24	.04	.05	.59
59.56	.04	.07	.6[illegible]
60.88	.15	.[illegible]5	.22
62.21	.11	.[illegible]4	.12
63.53	.05	.03	.23
64.85	.08	.05	.4[illegible]
66.18	.11	.[illegible]4	.44
67.50	.12	.02	.67

TETROON FLIGHT 14
105 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.72	1	.73	1	.60
2	.36	2	.26	2	.24
3	.25	3	-.12	3	.38
4	.06	4	-.34	4	.45
5	.09	5	-.34	5	.40
6	.16	6	-.22	6	.28
7	.08	7	-.08	7	.25
8	.04	8	.07	8	.20
9	.02	9	.10	9	.06
10	-.03	10	.02	10	.05
11	-.05	11	-.14	11	-.01
12	-.10	12	-.29	12	.03
13	-.16	13	-.28	13	.06
14	-.16	14	-.15	14	-.11
15	-.16	15	.00	15	-.14
16	-.25	16	.09	16	-.02
17	-.27	17	.05	17	.15
18	-.17	18	-.06	18	.15
19	-.12	19	-.17	19	.02
20	-.16	20	-.22	20	-.04
21	-.28	21	-.12	21	-.06
22	-.41	22	.08	22	.06
23	-.42	23	.25	23	.07
24	-.36	24	.31	24	-.07
25	-.21	25	.20	25	-.05
26	-.09	26	-.00	26	-.16
27	-.04	27	-.17	27	-.29
28	-.07	28	-.23	28	-.23
29	-.09	29	-.16	29	-.14
30	-.10	30	-.05	30	-.20
31	-.11	31	.01	31	-.34
32	-.14	32	.06	32	-.25
33	-.14	33	.08	33	-.22
34	-.01	34	.03	34	-.30

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
3.43	12.73	.88	1.92
5.14	9.74	1.25	[illegible].63
6.86	5.91	1.[illegible]6	9.05
8.57	4.77	2.10	4.33
10.29	3.75	1.62	3.77
12.00	2.55	.82	1.38
13.71	1.82	1.09	.56
15.43	2.47	1.41	.54
17.14	2.54	1.67	.48
18.86	3.44	1.30	.85
20. 7	2.13	1.[illegible]6	.[illegible]8
22.29	1.09	1.09	.64
24.00	1.91	2.24	1.07
25.71	2.31	.[illegible]	.58
27.43	1.52	.28	.6[illegible]
29.14	1.59	.46	1.75
30.86	.54	.43	3.[illegible]2
32.57	.71	.69	1.73
34.29	1.36	.64	1.[illegible]2
36.00	1.03	.44	1.0[illegible]
37.71	.82	.24	1.34
39.43	.25	.14	2.22
41.14	.18	.17	[illegible].13
42.86	.30	.19	[illegible]
44.57	.48	.[illegible]9	2.[illegible]
46.29	.80	.[illegible]6	1.22
48.00	.86	.[illegible]5	1.78
49.71	.[illegible]8	.[illegible]9	2.[illegible]6
51.43	.[illegible]9	.[illegible]8	.[illegible]5
53.14	.[illegible]4	.[illegible]6	1.15
54.86	.67	.[illegible]7	1.1[illegible]
56.57	.91	.[illegible]9	.[illegible]8
58.29	.65	.11	.3[illegible]
60.00	.35	.16	.2[illegible]
61.71	.43	.[illegible]4	.3[illegible]
63.43	.55	.10	.47
65.14	.25	.[illegible]9	.32
66.86	.25	.10	.46
68.57	.22	.[illegible]5	.43
70.29	.12	.[illegible]2	.[illegible]6
72.00	.05	.01	.[illegible]7
73.71	.01	.00	.22
75.43	.00	.00	.[illegible]5
77.14	.00	.00	.01
78.86	.00	.00	.[illegible]6
80.57	.00	.00	.00
82.29	.00	.00	.00
84.00	.00	.00	.00

TETROON FLIGHT 16
256 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CURR
0	1.00	51	-.66	0	1.00	51	-.04	0	1.00	51	-.12
1	.98	52	-.61	1	.97	52	-.05	1	.76	52	-.10
2	.94	53	-.56	2	.90	53	-.05	2	.74	53	.02
3	.90	54	-.51	3	.84	54	-.06	3	.61	54	.02
4	.84	55	-.46	4	.77	55	-.06	4	.52	55	.08
5	.78	56	-.41	5	.69	56	-.07	5	.39	56	.11
6	.70	57	-.36	6	.60	57	-.08	6	.24	57	.14
7	.61	58	-.31	7	.49	58	-.08	7	.13	58	.17
8	.52	59	-.27	8	.39	59	-.09	8	.03	59	.16
9	.43	60	-.23	9	.28	60	-.08	9	-.07	60	.20
10	.34	61	-.19	10	.17	61	-.08	10	-.16	61	.16
11	.26	62	-.15	11	.08	62	-.06	11	-.26	62	.17
12	.18	63	-.12	12	-.01	63	-.04	12	-.31	63	.19
13	.11	64	-.09	13	-.11	64	-.01	13	-.34	64	.13
14	.04	65	-.06	14	-.20	65	.01	14	-.44	65	.11
15	-.01	66	-.03	15	-.28	66	.04	15	-.42	66	.09
16	-.05	67	.01	16	-.34	67	.06	16	-.43	67	.07
17	-.09	68	.04	17	-.38	68	.08	17	-.36	68	.02
18	-.11	69	.08	18	-.40	69	.11	18	-.36	69	-.02
19	-.12	70	.12	19	-.42	70	.13	19	-.30	70	-.05
20	-.12	71	.16	20	-.45	71	.15	20	-.24	71	-.08
21	-.12	72	.21	21	-.48	72	.17	21	-.19	72	-.10
22	-.11	73	.25	22	-.49	73	.18	22	-.14	73	-.12
23	-.11	74	.30	23	-.48	74	.19	23	-.09	74	-.15
24	-.10	75	.34	24	-.47	75	.19	24	-.02	75	-.13
25	-.09	76	.39	25	-.45	76	.17	25	-.02	76	-.18
26	-.09	77	.43	26	-.43	77	.16	26	.08	77	-.13
27	-.09	78	.48	27	-.40	78	.13	27	.09	78	-.11
28	-.10	79	.52	28	-.37	79	.11	28	.14	79	-.01
29	-.12	80	.56	29	-.34	80	.08	29	.15	A0	.01
30	-.15	81	.60	30	-.30	81	.04	30	.17	A1	.10
31	-.19	82	.63	31	-.25	82	.01	31	.20	A2	.16
32	-.23	83	.66	32	-.21	83	-.03	32	.16	A3	.25
33	-.28	84	.69	33	-.17	84	-.07	33	.13	A4	.32
34	-.34			34	-.14			34	.11		
35	-.41			35	-.11			35	.05		
36	-.47			36	-.07			36	.03		
37	-.54			37	-.03			37	-.05		
38	-.60			38	-.01			38	-.13		
39	-.65			39	.01			39	-.17		
40	-.70			40	.02			40	-.23		
41	-.75			41	.03			41	-.26		
42	-.78			42	.04			42	-.35		
43	-.81			43	.05			43	-.30		
44	-.82			44	.05			44	-.36		
45	-.83			45	.04			45	-.37		
46	-.81			45	.03			46	-.35		
47	-.80			47	.02			47	-.30		
48	-.77			48	.00			48	-.29		
49	-.74			49	-.02			49	-.24		
50	-.70			50	-.03			50	-.21		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
1.41	169.37	14.74	11.98
2.11	275.11	16.47	20.21
2.81	79.47	40.71	8.28
3.52	36.40	44.90	14.90
4.22	50.35	50.58	25.75
4.92	44.70	65.50	63.03
5.62	31.23	22.21	21.44
6.33	27.10	14.75	64.77
7.03	30.42	10.27	22.29
7.73	11.59	4.34	10.19
8.44	4.67	6.48	7.74
9.14	2.15	6.24	2.75
9.84	1.95	2.67	3.73
10.55	1.31	1.99	4.41
11.25	1.11	1.44	2.17
11.95	1.98	1.91	2.54
12.66	1.36	1.35	2.91
13.36	.70	.99	1.26
14.06	1.24	.44	1.11
14.77	1.55	.37	1.84
15.47	.93	.57	2.32
16.17	.91	1.43	2.66
16.88	.63	1.31	2.74
17.58	.53	.67	1.73
18.28	.37	.44	1.85
18.98	.25	.92	.62
19.69	.19	1.34	.74
20.39	.20	.91	1.12
21.09	.27	.46	.59
21.80	.29	.43	.74
22.50	.38	.37	1.00
23.20	.31	.26	.49
23.91	.43	.33	.56
24.61	.27	.37	.72
25.31	.26	.28	.33
26.02	.37	.37	.58
26.72	.30	.74	.99
27.42	.44	1.53	.56
28.13	.30	1.69	.74
28.83	.17	1.22	1.02
29.53	.13	.46	1.01
30.23	.16	.19	.68
30.94	.41	.11	.32
31.64	.37	.07	.42
32.34	.10	.12	.30
33.05	.04	.23	.31
33.75	.18	.27	.53
34.45	.43	.08	1.04
35.16	.23	.06	.47
35.86	.07	.11	.36

TETROON FLIGHT 17
176 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.17	0	1.00	51	.01	0	1.00	51	.06
1	.70	52	.19	1	.47	52	.06	1	.53	52	.10
2	.48	53	.24	2	.90	53	.11	2	.27	53	.09
3	.52	54	.29	3	.81	54	.16	3	.43	54	.19
4	.38	55	.22	4	.68	55	.21	4	.26	55	.09
5	.34	56	.25	5	.55	56	.26	5	.23	56	.07
6	.32	57	.29	6	.43	57	.31	6	.09	57	.17
7	.24			7	.31			7	-.01		
8	.25			8	.20			8	.09		
9	.17			9	.09			9	-.12		
10	.14			10	.01			10	-.18		
11	.14			11	-.06			11	-.10		
12	.04			12	-.11			12	-.16		
13	.02			13	-.15			13	-.13		
14	-.03			14	-.17			14	-.14		
15	-.07			15	-.19			15	-.09		
16	-.05			16	-.21			16	-.06		
17	-.12			17	-.23			17	-.11		
18	-.13			18	-.24			18	-.02		
19	-.11			19	-.25			19	-.10		
20	-.15			20	-.26			20	-.14		
21	-.12			21	-.28			21	-.00		
22	-.13			22	-.31			22	-.11		
23	-.21			23	-.34			23	-.20		
24	-.22			24	-.36			24	-.12		
25	-.22			25	-.38			25	-.05		
26	-.19			26	-.39			26	-.04		
27	-.17			27	-.40			27	-.12		
28	-.19			28	-.40			28	-.02		
29	-.18			29	-.40			29	.04		
30	-.20			30	-.39			30	.02		
31	-.27			31	-.37			31	.01		
32	-.24			32	-.35			32	.08		
33	-.27			33	-.32			33	.20		
34	-.27			34	-.30			34	.15		
35	-.20			35	-.30			35	.04		
36	-.21			36	-.29			36	.15		
37	-.23			37	-.28			37	.07		
38	-.18			38	-.26			38	-.14		
39	-.20			39	-.25			39	-.14		
40	-.17			40	-.24			40	-.16		
41	-.19			41	-.23			41	-.23		
42	-.16			42	-.21			42	-.25		
43	-.06			43	-.20			43	-.24		
44	-.08			44	-.19			44	-.24		
45	-.03			45	-.18			45	-.21		
46	.05			46	-.17			46	-.13		
47	-.02			47	-.16			47	-.14		
48	.01			48	-.14			48	-.11		
49	.07			49	-.10			49	-.09		
50	.09			50	-.05			50	-.11		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.05	19.39	24.65	4.94
3.07	27.95	31.85	7.85
4.09	10.73	16.20	4.25
5.11	7.22	9.58	8.06
6.14	6.47	7.96	7.47
7.16	4.51	6.25	2.87
8.18	4.03	5.96	2.42
9.20	3.13	3.87	3.31
10.23	1.45	2.05	6.52
11.25	1.38	1.80	3.47
12.27	2.41	1.06	1.29
13.30	2.02	.67	.85
14.32	2.00	.48	.60
15.34	1.20	.41	.46
16.36	1.08	.68	.62
17.39	1.67	.28	.35
18.41	1.78	.28	.36
19.43	2.92	.41	.93
20.45	1.71	.28	1.44
21.48	.54	.46	.91
22.50	.24	.27	.51
23.52	.98	.24	.42
24.55	2.03	.24	.52
25.57	1.33	.15	.74
26.59	1.32	.21	1.01
27.61	.69	.20	1.34
28.64	.47	.12	.51
29.66	.76	.07	.61
30.68	.83	.16	1.11
31.70	1.48	.09	.51
32.73	.89	.16	.52
33.75	.83	.05	1.07
34.77	1.12	.02	.72
35.80	.96	.03	.67
36.82	.83	.05	.61
37.84	.32	.05	.76
38.86	.37	.03	.51
39.89	.54	.03	.38
40.91	.74	.04	.62
41.93	.99	.02	1.05
42.95	.59	.02	1.65
43.98	.67	.02	1.91
45.00	.41	.01	1.16
46.02	.56	.03	.71
47.05	1.06	.04	.64
48.07	.93	.05	1.07
49.09	.99	.06	1.91
50.11	.95	.06	1.44
51.14	.73	.05	.64
52.16	.22	.04	.31

TETROON FLIGHT 19
300 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	-.22	0	1.00	51	-.15	0	1.00	51	-.32
1	.99	52	-.25	1	.97	52	-.15	1	.88	52	-.31
2	.96	53	-.27	2	.89	53	-.14	2	.80	53	-.30
3	.91	54	-.29	3	.80	54	-.14	3	.66	54	-.27
4	.85	55	-.31	4	.69	55	-.13	4	.49	55	-.23
5	.78	56	-.32	5	.59	56	-.12	5	.32	56	-.19
6	.70	57	-.33	6	.48	57	-.10	6	.18	57	-.12
7	.61	58	-.33	7	.39	58	-.09	7	.04	58	-.06
8	.52	59	-.32	8	.30	59	-.08	8	-.08	59	.02
9	.43	60	-.31	9	.23	60	-.09	9	-.18	60	.07
10	.34	61	-.29	10	.18	61	-.10	10	-.24	61	.14
11	.26	62	-.26	11	.16	62	-.12	11	-.30	62	.21
12	.18	63	-.24	12	.16	63	-.14	12	-.32	63	.28
13	.11	64	-.21	13	.18	64	-.15	13	-.33	64	.34
14	.05	65	-.18	14	.22	65	-.16	14	-.32	65	.40
15	-.01	66	-.16	15	.26	66	-.17	15	-.31	66	.43
16	-.05	67	-.13	16	.30	67	-.18	16	-.29	67	.45
17	-.09	68	-.11	17	.34	68	-.19	17	-.25	68	.43
18	-.13	69	-.10	18	.38	69	-.20	18	-.20	69	.41
19	-.16	70	-.08	19	.39	70	-.20	19	-.16	70	.36
20	-.19	71	-.07	20	.40	71	-.19	20	-.10	71	.30
21	-.22	72	-.07	21	.38	72	-.18	21	-.05	72	.24
22	-.24	73	-.06	22	.35	73	-.16	22	-.01	73	.18
23	-.26	74	-.06	23	.30	74	-.15	23	.01	74	.11
24	-.29	75	-.07	24	.24	75	-.15	24	.04	75	.04
25	-.31	76	-.07	25	.17	76	-.14	25	.03	76	-.01
26	-.32	77	-.08	26	.10	77	-.14	26	.03	77	-.06
27	-.34	78	-.08	27	.03	78	-.14	27	.02	78	-.10
28	-.34	79	-.09	28	-.03	79	-.14	28	-.01	79	-.12
29	-.35	80	-.10	29	-.09	80	-.13	29	-.03	80	-.13
30	-.35	81	-.10	30	-.13	81	-.11	30	-.04	81	-.12
31	-.35	82	-.10	31	-.16	82	-.09	31	-.06	82	-.12
32	-.34	83	-.09	32	-.17	83	-.09	32	-.07	83	-.11
33	-.33	84	-.07	33	-.17	84	-.09	33	-.06	84	-.09
34	-.32	85	-.05	34	-.17	85	-.11	34	-.05	85	-.06
35	-.31	86	-.03	35	-.16	86	-.14	35	-.05	86	-.03
36	-.29	87	-.00	36	-.15	87	-.16	36	-.05	87	.01
37	-.28	88	.03	37	-.12	88	-.17	37	-.04	88	.06
38	-.26	89	.05	38	-.09	89	-.17	38	-.06	89	.09
39	-.23	90	.08	39	-.06	90	-.16	39	-.05	90	.13
40	-.21	91	.10	40	-.04	91	-.15	40	-.05	91	.17
41	-.19	92	.13	41	-.03	92	-.13	41	-.06	92	.22
42	-.17	93	.15	42	-.03	93	-.10	42	-.07	93	.25
43	-.16	94	.18	43	-.04	94	-.09	43	-.09	94	.26
44	-.15	95	.20	44	-.06	95	-.07	44	-.12	95	.27
45	-.14	96	.23	45	-.08	96	-.06	45	-.16	96	.26
46	-.15	97	.25	46	-.10	97	-.05	46	-.21	97	.23
47	-.16	98	.27	47	-.13	98	-.04	47	-.24	98	.19
48	-.17	99	.29	48	-.14	99	-.03	48	-.27	99	.13
49	-.18			49	-.15			49	-.31		
50	-.20			50	-.15			50	-.32		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
1.20	28.19	4.28	.14
1.80	43.71	3.47	1.14
2.40	18.11	2.41	2.51
3.00	15.75	1.64	1.25
3.60	13.76	.88	.97
4.20	9.51	.64	1.03
4.80	15.14	.28	1.45
5.40	9.11	.32	3.66
6.00	5.02	.54	1.97
6.60	4.57	.92	.86
7.20	5.63	.78	1.43
7.80	9.86	1.09	2.90
8.40	4.68	1.44	1.32
9.00	2.23	1.37	.84
9.60	1.45	1.09	.66
10.20	1.68	.60	.43
10.80	1.21	.22	.41
11.40	.94	.41	.14
12.00	.70	.18	.23
12.60	.28	.14	.31
13.20	.27	.21	.31
13.80	.28	.18	.14
14.40	.40	.09	.14
15.00	.24	.13	.21
15.60	.27	.16	.17
16.20	.47	.12	.22
16.80	.60	.08	.14
17.40	.29	.12	.14
18.00	.26	.06	.05
18.60	.28	.04	.05
19.20	.16	.06	.06
19.80	.14	.06	.04
20.40	.13	.06	.04
21.00	.07	.07	.04
21.60	.04	.12	.03
22.20	.18	.07	.03
22.80	.17	.04	.02
23.40	.12	.05	.02
24.00	.16	.05	.04
24.60	.14	.03	.03
25.20	.02	.02	.01
25.80	.02	.03	.04
26.40	.17	.04	.01
27.00	.11	.07	.01
27.60	.09	.05	.02
28.20	.09	.02	.01
28.80	.09	.01	.00
29.40	.14	.01	.01
30.00	.12	.02	.02
30.60	.09	.02	.01

TETHOON FLIGHT 20
200 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.27	0	1.00	51	-.03	0	1.00	51	-.21
1	.93	52	.27	1	.96	52	.04	1	.64	52	-.24
2	.81	53	.27	2	.85	53	.12	2	.47	53	-.14
3	.67	54	.28	3	.73	54	.21	3	.22	54	-.10
4	.53	55	.28	4	.59	55	.31	4	.02	55	-.01
5	.39	56	.26	5	.45	56	.40	5	-.13	56	.16
6	.25	57	.22	6	.30	57	.48	6	-.29	57	.28
7	.12	58	.18	7	.16	58	.54	7	-.39	58	.34
8	-.00	59	.15	8	.03	59	.58	8	-.43	59	.34
9	-.10	60	.12	9	-.08	60	.58	9	-.36	60	.24
10	-.17	61	.06	10	-.16	61	.56	10	-.21	61	.13
11	-.20	62	-.00	11	-.22	62	.51	11	-.06	62	.13
12	-.21	63	-.09	12	-.26	63	.43	12	.12	63	-.02
13	-.21	64	-.17	13	-.29	64	.34	13	.25	64	-.14
14	-.20	65	-.25	14	-.30	65	.25	14	.25	65	-.29
15	-.21			15	-.31			15	.25		
16	-.20			16	-.31			16	.25		
17	-.20			17	-.31			17	.11		
18	-.20			18	-.30			18	.04		
19	-.21			19	-.29			19	-.13		
20	-.23			20	-.27			20	-.30		
21	-.24			21	-.25			21	-.31		
22	-.25			22	-.24			22	-.30		
23	-.25			23	-.24			23	-.21		
24	-.25			24	-.24			24	-.17		
25	-.23			25	-.23			25	-.02		
26	-.20			26	-.22			26	.05		
27	-.17			27	-.22			27	.16		
28	-.14			28	-.23			28	.27		
29	-.12			29	-.23			29	.26		
30	-.10			30	-.22			30	.25		
31	-.08			31	-.21			31	.23		
32	-.06			32	-.18			32	.16		
33	-.04			33	-.16			33	.03		
34	-.04			34	-.15			34	-.05		
35	-.06			35	-.15			35	-.18		
36	-.10			36	-.14			36	-.30		
37	-.14			37	-.13			37	-.31		
38	-.16			38	-.11			38	-.32		
39	-.16			39	-.10			39	-.25		
40	-.14			40	-.09			40	-.15		
41	-.12			41	-.09			41	-.01		
42	-.09			42	-.09			42	.02		
43	-.07			43	-.09			43	.08		
44	-.03			44	-.09			44	.16		
45	.01			45	-.10			45	.13		
46	.07			46	-.10			46	.09		
47	.13			47	-.10			47	.01		
48	.18			48	-.10			48	-.17		
49	.23			49	-.09			49	-.17		
50	.25			50	-.07			50	-.26		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
1.80	8.39	12.64	1.74
2.70	10.58	22.46	2.12
3.60	14.12	24.12	.87
4.50	7.08	12.78	.82
5.40	10.04	13.83	2.74
6.30	15.44	18.16	4.59
7.20	7.66	8.59	2.1[illegible]
8.10	5.64	12.56	2.44
9.00	4.40	1[illegible].00	1.06
9.90	7.25	6.56	4.46
10.80	5.20	3.43	4.5[illegible]
11.70	3.14	4.99	8.39
12.60	1.63	2.54	1[illegible].69
13.50	.74	1.63	4.5[illegible]
14.40	1.02	2.37	3.82
15.30	.92	1.4[illegible]	2.17
16.20	.66	.9[illegible]	1.32
17.10	.93	.70	1.0[illegible]
18.00	.43	.50	.27
18.90	.36	.66	.13
19.80	.43	.28	.36
20.70	.43	.33	.68
21.60	.36	.40	.72
22.50	.24	.26	.54
23.40	.09	.17	.27
24.30	.10	.13	.2[illegible]
25.20	.47	.20	.13
26.10	.99	.57	.22
27.00	.65	.64	.4[illegible]
27.90	.25	.37	.57
28.80	.30	.21	.58
29.70	.29	.15	.35
30.60	.17	.15	.88
31.50	.23	.26	1.19
32.40	.08	.35	.44
33.30	.05	.32	.41
34.20	.03	.12	.36
35.10	.02	.10	.21
36.00	.03	.05	.12
36.90	.05	.05	.21
37.80	.04	.10	.33
38.70	.06	.07	.31
39.60	.07	.06	.52
40.50	.05	.12	.64
41.40	.08	.09	.13
42.30	.14	.08	.18
43.20	.07	.11	.34
44.10	.04	.08	.16
45.00	.03	.03	.14
45.90	.02	.02	.21

TETHOON FLIGHT 21
136 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.95	1	.97	1	.48
2	.88	2	.88	2	.37
3	.81	3	.75	3	.33
4	.70	4	.60	4	.19
5	.58	5	.42	5	-.02
6	.45	6	.24	6	-.14
7	.31	7	.06	7	-.18
8	.17	8	-.11	8	-.23
9	.04	9	-.26	9	-.14
10	-.08	10	-.38	10	-.14
11	-.19	11	-.47	11	-.12
12	-.28	12	-.53	12	-.00
13	-.37	13	-.57	13	.11
14	-.43	14	-.59	14	-.04
15	-.48	15	-.59	15	.07
16	-.53	16	-.56	16	-.06
17	-.56	17	-.52	17	-.04
18	-.58	18	-.46	18	-.12
19	-.59	19	-.39	19	-.18
20	-.61	20	-.31	20	-.24
21	-.62	21	-.22	21	-.22
22	-.62	22	-.13	22	-.23
23	-.61	23	-.05	23	-.19
24	-.60	24	.03	24	-.13
25	-.57	25	.10	25	-.06
26	-.53	26	.14	26	.09
27	-.48	27	.17	27	.10
28	-.44	28	.17	28	.14
29	-.39	29	.15	29	.07
30	-.33	30	.12	30	.14
31	-.26	31	.08	31	.05
32	-.19	32	.04	32	.15
33	-.11	33	-.00	33	.10
34	-.02	34	-.04	34	.07
35	.05	35	-.06	35	-.06
36	.13	36	-.08	36	-.03
37	.21	37	-.08	37	-.04
38	.28	38	-.07	38	-.13
39	.35	39	-.05	39	-.17
40	.43	40	-.02	40	-.20
41	.50	41	.02	41	-.18
42	.57	42	.06	42	-.08
43	.63	43	.09	43	-.04
44	.68	44	.12	44	-.00

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	13.11	12.62	3.60
3.97	22.08	19.34	6.13
5.29	7.45	24.77	6.90
6.62	3.60	25.70	5.54
7.94	3.47	15.76	2.34
9.26	1.86	4.34	2.25
10.59	.70	1.76	3.97
11.91	.63	.98	7.42
13.24	.24	1.30	3.64
14.56	.21	1.25	.51
15.88	.08	.52	1.44
17.21	.07	.45	.74
18.53	.18	.35	.65
19.85	.18	.45	.65
21.18	.07	.25	.43
22.50	.03	.11	.16
23.82	.03	.14	.18
25.15	.06	.14	.21
26.47	.08	.11	.47
27.79	.09	.05	.75
29.12	.07	.04	.32
30.44	.07	.03	.25
31.76	.06	.04	.34
33.09	.06	.06	.41
34.41	.05	.02	.35
35.74	.05	.05	.04
37.06	.03	.04	.18
38.38	.05	.03	.24
39.71	.02	.01	1.44
41.03	.02	.01	.90
42.35	.03	.02	1.13
43.68	.05	.05	1.04
45.00	.04	.05	.53
46.32	.08	.05	.67
47.65	.06	.02	.44
48.97	.10	.01	.59
50.29	.06	.01	.37
51.62	.06	.01	.36
52.94	.03	.01	.45
54.26	.04	.00	.49
55.59	.03	.00	.45
56.91	.05	.01	.66
58.24	.03	.01	1.11
59.56	.04	.01	.59
60.88	.03	.01	.72
62.21	.05	.01	.45
63.53	.03	.01	.25
64.85	.05	.02	.24
66.18	.03	.02	.15
67.50	.03	.01	.31

TETROON FLIGHT 22
180 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.10	0	1.00	51	.16	0	1.00	51	-.07
1	.97	52	.11	1	.97	52	.22	1	.40	52	-.17
2	.92	53	.11	2	.92	53	.27	2	.16	53	-.15
3	.86	54	.10	3	.85	54	.32	3	.31	54	-.18
4	.78	55	.08	4	.77	55	.36	4	-.05	55	-.09
5	.69	56	.06	5	.68	56	.41	5	.05	56	-.04
6	.60	57	.04	6	.58	57	.45	6	-.03	57	-.16
7	.50	58	.01	7	.49	58	.48	7	-.24	58	.13
8	.41	59	-.03	8	.41	59	.51	8	-.06	59	.24
9	.33			9	.34			9	-.24		
10	.25			10	.29			10	-.29		
11	.17			11	.25			11	-.17		
12	.10			12	.22			12	-.26		
13	.02			13	.18			13	-.17		
14	-.04			14	.14			14	-.13		
15	-.11			15	.11			15	-.12		
16	-.17			16	.07			16	.06		
17	-.24			17	.03			17	.16		
18	-.29			18	-.02			18	.11		
19	-.35			19	-.08			19	.13		
20	-.39			20	-.14			20	.18		
21	-.41			21	-.20			21	.08		
22	-.43			22	-.26			22	.11		
23	-.42			23	-.31			23	.04		
24	-.41			24	-.36			24	-.02		
25	-.39			25	-.41			25	.17		
26	-.37			26	-.45			26	-.05		
27	-.35			27	-.49			27	-.16		
28	-.33			28	-.53			28	-.02		
29	-.30			29	-.56			29	-.27		
30	-.29			30	-.59			30	-.13		
31	-.27			31	-.61			31	-.05		
32	-.26			32	-.62			32	-.26		
33	-.25			33	-.62			33	.03		
34	-.24			34	-.62			34	-.05		
35	-.23			35	-.62			35	-.13		
36	-.23			36	-.60			36	.17		
37	-.22			37	-.59			37	.02		
38	-.20			38	-.58			38	.05		
39	-.19			39	-.55			39	.12		
40	-.17			40	-.53			40	-.09		
41	-.15			41	-.50			41	.09		
42	-.12			42	-.46			42	.18		
43	-.10			43	-.41			43	.10		
44	-.07			44	-.35			44	.09		
45	-.04			45	-.28			45	-.04		
46	-.01			46	-.21			46	-.06		
47	.02			47	-.14			47	-.06		
48	.06			48	-.06			48	-.11		
49	.08			49	.01			49	-.06		
50	.10			50	.09			50	.01		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.00	15.65	15.82	.61
3.00	21.98	20.36	.82
4.00	10.46	5.60	.90
5.00	6.65	2.47	.55
6.00	4.67	2.20	.41
7.00	2.30	3.15	1.11
8.00	1.32	1.56	1.92
9.00	1.33	1.74	2.74
10.00	2.02	2.23	1.43
11.00	1.02	2.55	1.59
12.00	.76	1.68	.69
13.00	.89	1.31	.32
14.00	1.29	1.14	.41
15.00	.99	.77	.46
16.00	.66	.30	.20
17.00	.34	.28	.41
18.00	.16	.24	.42
19.00	.19	.18	.42
20.00	.23	.13	.60
21.00	.38	.17	1.04
22.00	.30	.12	.31
23.00	.12	.10	.20
24.00	.11	.11	.33
25.00	.08	.11	.25
26.00	.05	.08	.12
27.00	.06	.10	.10
28.00	.07	.16	.24
29.00	.08	.09	.45
30.00	.05	.13	.22
31.00	.08	.12	.20
32.00	.06	.07	.15
33.00	.10	.07	.24
34.00	.13	.03	.21
35.00	.04	.03	.24
36.00	.09	.05	.16
37.00	.10	.03	.12
38.00	.04	.06	.15
39.00	.05	.10	.16
40.00	.05	.07	.26
41.00	.03	.09	.27
42.00	.04	.08	.49
43.00	.07	.07	.74
44.00	.04	.06	.34
45.00	.04	.05	.26
46.00	.05	.02	.34
47.00	.06	.02	.13
48.00	.04	.02	.16
49.00	.01	.02	.27
50.00	.01	.02	.21
51.00	.02	.01	.33

TETROON FLIGHT 23
170 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL		LATERAL		VERTICAL	
LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	-.16	0	1.00
1	.93	52	-.13	1	.56
2	.82	53	-.08	2	.20
3	.72	54	-.02	3	.27
4	.59	55	.05	4	.15
5	.45			5	.05
6	.31			6	-.06
7	.20			7	-.16
8	.12			8	-.15
9	.04			9	-.19
10	-.04			10	-.15
11	-.10			11	-.08
12	-.12			12	-.07
13	-.14			13	-.03
14	-.15			14	-.05
15	-.15			15	.02
16	-.14			16	.06
17	-.15			17	-.03
18	-.16			18	-.02
19	-.19			19	-.07
20	-.20			20	-.13
21	-.21			21	-.03
22	-.23			22	-.01
23	-.23			23	-.05
24	-.22			24	-.03
25	-.21			25	-.02
26	-.20			26	-.04
27	-.19			27	-.10
28	-.17			28	-.08
29	-.15			29	-.02
30	-.16			30	-.05
31	-.16			31	-.06
32	-.15			32	-.01
33	-.12			33	-.02
34	-.10			34	-.02
35	-.08			35	.04
36	-.03			36	.05
37	.02			37	.05
38	.07			38	.07
39	.10			39	.04
40	.12			40	.05
41	.12			41	.09
42	.09			42	.04
43	.05			43	-.02
44	-.00			44	-.08
45	-.06			45	-.14
46	-.10			46	-.14
47	-.13			47	-.14
48	-.17			48	-.17
49	-.18			49	-.17
50	-.18			50	-.10

51	-.16	51	.06	51	-.00
52	-.13	52	.12	52	.04
53	-.08	53	.16	53	.13
54	-.02	54	.20	54	.21
55	.05	55	.23	55	.16

51	.06	51	-.00
52	.12	52	.04
53	.16	53	.13
54	.20	54	.21
55	.23	55	.16

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.12	34.35	19.79	3.6[illegible]
3.18	27.42	30.55	6.14
4.24	35.38	22.36	5.14
5.29	26.43	17.72	5.17
6.35	14.11	9.98	4.51
7.41	9.12	8.43	2.74
8.47	14.77	3.68	5.82
9.53	12.29	2.14	11.92
10.59	4.18	2.15	5.47
11.65	4.80	.81	3.22
12.71	5.02	1.50	4.88
13.76	3.56	2.47	4.48
14.82	1.11	1.03	2.93
15.88	.48	.75	3.04
16.94	.63	.44	1.40
18.00	1.71	.53	.86
19.06	2.14	.66	1.02
20.12	.98	.35	.51
21.18	.75	.35	.89
22.24	.43	.32	1.42
23.29	.56	.54	1.06
24.35	.61	.57	1.62
25.41	.47	.79	1.09
26.47	.18	1.26	.79
27.53	.07	.96	.69
28.59	.08	.77	.85
29.65	.09	.60	1.20
30.71	.13	.45	2.26
31.76	.08	.25	1.19
32.82	.09	.30	1.23
33.88	.17	.32	2.31
34.94	.16	.13	1.78
36.00	.22	.14	1.35
37.06	.45	.26	1.03
38.12	.39	.27	1.00
39.18	.25	.19	1.14
40.24	.15	.11	1.21
41.29	.31	.19	1.81
42.35	.78	.20	1.64
43.41	.92	.18	1.71
44.47	.62	.15	1.23
45.53	.25	.27	1.54
46.59	.08	.40	1.01
47.65	.06	.37	1.25
48.71	.11	.23	1.50
49.76	.14	.19	1.47
50.82	.10	.22	1.5[illegible]
51.88	.12	.21	.72
52.94	.18	.11	.[illegible]
54.00	.19	.04	.51

TETROON FLIGHT 24
184 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.12	0	1.00	51	-.07	0	1.00	51	.10
1	.95	52	.15	1	.82	52	-.07	1	.85	52	.11
2	.87	53	.19	2	.53	53	-.12	2	.64	53	.14
3	.81	54	.23	3	.30	54	-.15	3	.48	54	.19
4	.74	55	.27	4	.17	55	-.12	4	.36	55	.22
5	.65	56	.31	5	.09	56	-.05	5	.20	56	.23
6	.56	57	.34	6	.05	57	.01	6	.02	57	.23
7	.45	58	.39	7	.03	58	.08	7	-.11	58	.26
8	.35	59	.44	8	-.05	59	.10	8	-.18	59	.30
9	.27	60	.51	9	-.14	60	.09	9	-.26	60	.30
10	.19			10	-.18			10	-.33		
11	.12			11	-.19			11	-.38		
12	.07			12	-.20			12	-.44		
13	.02			13	-.22			13	-.49		
14	-.02			14	-.20			14	-.49		
15	-.06			15	-.20			15	-.46		
16	-.09			16	-.19			16	-.41		
17	-.11			17	-.16			17	-.38		
18	-.13			18	-.09			18	-.31		
19	-.17			19	-.03			19	-.23		
20	-.22			20	.01			20	-.14		
21	-.26			21	.07			21	-.04		
22	-.29			22	.12			22	.05		
23	-.29			23	.11			23	.14		
24	-.31			24	.03			24	.23		
25	-.35			25	-.06			25	.30		
26	-.39			26	-.08			26	.33		
27	-.39			27	-.06			27	.33		
28	-.39			28	.02			28	.31		
29	-.37			29	.09			29	.30		
30	-.35			30	.08			30	.29		
31	-.34			31	.00			31	.23		
32	-.32			32	-.05			32	.16		
33	-.30			33	-.02			33	.09		
34	-.28			34	.03			34	.02		
35	-.26			35	.06			35	-.02		
36	-.22			36	.07			36	-.05		
37	-.19			37	.04			37	-.10		
38	-.16			38	-.03			38	-.17		
39	-.17			39	-.11			39	-.23		
40	-.18			40	-.14			40	-.24		
41	-.17			41	-.15			41	-.24		
42	-.16			42	-.15			42	-.25		
43	-.18			43	-.14			43	-.27		
44	-.19			44	-.10			44	-.26		
45	-.19			45	-.08			45	-.19		
46	-.15			46	-.12			46	-.14		
47	-.08			47	-.17			47	-.09		
48	-.02			48	-.17			48	-.05		
49	.02			49	-.15			49	.02		
50	.06			50	-.12			50	.06		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
1.90	660.34	62.02	24.37
2.93	1090.74	48.47	66.47
3.91	481.18	45.76	64.49
4.89	429.95	80.34	154.28
5.87	500.37	105.16	397.13
6.85	229.32	78.55	324.61
7.83	181.35	63.91	179.61
8.80	293.70	62.65	85.79
9.78	168.77	53.09	50.49
10.76	170.11	32.70	36.78
11.74	62.67	19.62	43.15
12.72	58.80	13.43	51.68
13.70	67.12	15.75	8.38
14.67	31.75	24.65	35.67
15.65	12.19	25.88	44.64
16.63	20.92	27.82	17.05
17.61	36.13	27.45	18.91
18.59	26.54	26.67	23.26
19.57	10.59	25.48	15.69
20.54	15.65	10.68	14.51
21.52	22.55	4.66	13.96
22.50	21.74	7.70	12.80
23.48	21.17	14.69	13.00
24.46	6.57	41.85	7.91
25.43	9.70	21.13	3.3-
26.41	8.41	8.28	2.59
27.39	9.24	8.73	1.44
28.37	11.69	6.53	4.69
29.35	21.22	4.17	1.54
30.33	17.08	14.81	1.51
31.30	13.85	15.80	3.70
32.28	7.57	9.31	3.89
33.26	10.63	2.89	8.82
34.24	4.43	1.94	14.04
35.26	6.12	3.74	15.22
36.20	6.66	6.45	12.65
37.17	12.97	3.18	4.01
38.15	24.34	4.34	5.53
39.13	7.87	3.73	11.99
40.11	5.10	2.51	7.67
41.09	6.06	2.60	3.94
42.07	6.55	2.84	7.99
43.04	3.08	3.38	10.80
44.02	4.35	1.85	6.9
45.00	3.91	2.46	5.83
45.98	4.01	1.60	5.44
46.96	6.90	3.72	6.54
47.93	3.82	7.40	4.74
48.91	4.46	5.05	4.67
49.89	5.31	2.32	3.88

TETROON FLIGHT 26
180 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.20	0	1.00	51	-.04	0	1.00	51	-.06
1	.91	52	.23	1	.95	52	-.05	1	.83	52	-.03
2	.84	53	.31	2	.85	53	-.06	2	.83	53	-.00
3	.78	54	.36	3	.74	54	-.10	3	.79	54	.04
4	.72	55	.40	4	.61	55	-.13	4	.76	55	.07
5	.68	56	.44	5	.48	56	-.17	5	.71	56	.08
6	.61	57	.47	6	.34	57	-.19	6	.65	57	.11
7	.53	58	.51	7	.22	58	-.16	7	.60	58	.16
8	.46	59	.53	8	.11	59	-.11	8	.56	59	.19
9	.37			9	.02			9	.52		
10	.30			10	-.07			10	.48		
11	.23			11	-.15			11	.39		
12	.15			12	-.20			12	.31		
13	.09			13	-.20			13	.23		
14	.04			14	-.20			14	.18		
15	-.02			15	-.19			15	.12		
16	-.09			16	-.18			16	.07		
17	-.17			17	-.17			17	.01		
18	-.23			18	-.15			18	-.03		
19	-.27			19	-.12			19	-.06		
20	-.31			20	-.10			20	-.10		
21	-.32			21	-.07			21	-.20		
22	-.36			22	-.03			22	-.22		
23	-.42			23	.01			23	-.26		
24	-.46			24	.04			24	-.28		
25	-.50			25	.07			25	-.31		
26	-.54			26	.09			26	-.34		
27	-.59			27	.09			27	-.33		
28	-.62			28	.10			28	-.39		
29	-.65			29	.11			29	-.39		
30	-.66			30	.11			30	-.41		
31	-.68			31	.10			31	-.44		
32	-.67			32	.08			32	-.44		
33	-.66			33	.07			33	-.47		
34	-.66			34	.06			34	-.42		
35	-.64			35	.04			35	-.46		
36	-.60			36	.00			36	-.47		
37	-.57			37	-.05			37	-.48		
38	-.52			38	-.10			38	-.47		
39	-.48			39	-.14			39	-.44		
40	-.43			40	-.16			40	-.45		
41	-.37			41	-.16			41	-.48		
42	-.30			42	-.15			42	-.42		
43	-.24			43	-.14			43	-.36		
44	-.16			44	-.11			44	-.30		
45	-.10			45	-.08			45	-.30		
46	-.03			46	-.07			46	-.25		
47	.05			47	-.06			47	-.21		
48	.11			48	-.04			48	-.15		
49	.13			49	-.03			49	-.10		
50	.17			50	-.03			50	-.07		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.00	39.54	4.15	81.17
3.00	62.08	12.41	95.83
4.00	20.53	6.26	54.60
5.00	13.17	21.49	39.48
6.00	8.08	29.16	2[illegible].71
7.00	12.27	32.45	23.82
8.00	8.82	26.84	14.73
9.00	3.35	12.18	7.67
10.00	2.61	12.53	7.47
11.00	2.40	15.07	5.72
12.00	1.63	7.26	4.03
13.00	1.02	5.19	2.[illegible]
14.00	1.25	2.73	3.21
15.00	2.47	3.04	5.21
16.00	1.76	2.23	4.1[illegible]
17.00	.96	1.09	4.77
18.00	.35	1.96	5.44
19.00	.43	1.43	5.22
20.00	.64	2.79	6.03
21.00	.27	1.77	3.58
22.00	.59	.47	2.31
23.00	1.48	1.55	1.27
24.00	1.23	1.[illegible]1	1.1[illegible]
25.00	1.16	1.24	1.57
26.00	1.66	.96	1.2[illegible]
27.00	1.20	.43	1.12
28.00	.80	.29	1.87
29.00	.39	.41	1.72
30.00	.44	.53	1.[illegible]3
31.00	.20	.18	.37
32.00	.35	.12	.75
33.00	.56	.23	1.7[illegible]
34.00	.40	.32	.95
35.00	.46	.45	.87
36.00	.36	.76	2.11
37.00	.38	.62	4.79
38.00	.24	.40	2.61
39.00	.12	.30	1.12
40.00	.20	.46	1.37
41.00	.21	.25	2.4[illegible]
42.00	.15	.26	1.80
43.00	.16	.25	.81
44.00	.14	.08	.67
45.00	.08	.09	1.34
46.00	.08	.12	2.30
47.00	.05	.15	1.81
48.00	.10	.30	.95
49.00	.22	.15	.8[illegible]
50.00	.34	.13	.9[illegible]
51.00	.16	.11	.47

TETHOON FLIGHT 28
200 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.41	0	1.00	51	-.28	0	1.00	51	.22
1	.96	52	.37	1	.94	52	-.29	1	.84	52	.14
2	.89	53	.32	2	.82	53	-.28	2	.67	53	.11
3	.81	54	.25	3	.67	54	-.26	3	.26	54	-.01
4	.73	55	.18	4	.51	55	-.24	4	.05	55	-.02
5	.64	56	.09	5	.34	56	-.22	5	-.13	56	-.12
6	.52	57	-.01	6	.18	57	-.21	6	-.35	57	-.12
7	.39	58	-.08	7	.05	58	-.19	7	-.47	58	-.08
8	.27	59	-.16	8	-.04	59	-.17	8	-.48	59	-.11
9	.17	60	-.22	9	-.08	60	-.15	9	-.51	60	-.06
10	.08	61	-.29	10	-.08	61	-.13	10	-.37	61	-.05
11	-.01	62	-.34	11	-.07	62	-.12	11	-.26	62	.04
12	-.09	63	-.38	12	-.03	63	-.09	12	-.04	63	.06
13	-.16	64	-.41	13	.02	64	-.04	13	.10	64	.02
14	-.22	65	-.44	14	.06	65	.00	14	.19	65	.07
15	-.28			15	.09			15	.24		
16	-.34			16	.08			16	.24		
17	-.39			17	.05			17	.23		
18	-.43			18	.01			18	.16		
19	-.47			19	-.02			19	.10		
20	-.51			20	-.06			20	-.00		
21	-.52			21	-.10			21	-.08		
22	-.53			22	-.12			22	-.16		
23	-.52			23	-.13			23	-.24		
24	-.51			24	-.13			24	-.23		
25	-.49			25	-.13			25	-.24		
26	-.46			26	-.12			26	-.18		
27	-.44			27	-.08			27	-.18		
28	-.42			28	-.03			28	-.00		
29	-.41			29	-.00			29	.13		
30	-.39			30	.02			30	.10		
31	-.34			31	.03			31	.19		
32	-.30			32	.04			32	.27		
33	-.27			33	.06			33	.30		
34	-.26			34	.06			34	.28		
35	-.22			35	.05			35	.28		
36	-.16			36	.04			36	.07		
37	-.09			37	.04			37	-.01		
38	-.02			38	.05			38	-.16		
39	.05			39	.06			39	-.24		
40	.13			40	.07			40	-.37		
41	.20			41	.06			41	-.35		
42	.26			42	.03			42	-.35		
43	.32			43	-.00			43	-.29		
44	.37			44	-.03			44	-.25		
45	.42			45	-.05			45	-.05		
46	.45			46	-.10			46	.04		
47	.46			47	-.15			47	.22		
48	.47			48	-.19			48	.28		
49	.46			49	-.22			49	.32		
50	.45			50	-.25			50	.29		

SPECTRAL ESTIMATES

FREQ (CY/NM)	LONG	LAT	VERT
1.80	2.04	3.16	.15
2.70	3.11	1.95	.49
3.60	6.42	1.60	.94
4.50	3.13	1.07	.82
5.40	1.14	1.62	1.29
6.30	1.11	.52	2.46
7.20	.92	.81	1.24
8.10	.56	1.01	.87
9.00	.30	.78	1.23
9.90	.26	.68	2.2-
10.80	.23	1.30	3.45
11.70	.10	1.53	5.14
12.60	.10	1.56	6.67
13.50	.10	1.11	2.62
14.40	.03	.36	1.51
15.30	.02	.39	1.04
16.20	.03	.40	.44
17.10	.04	.19	.33
18.00	.02	.20	.43
18.90	.01	.15	.34
19.80	.02	.05	.20
20.70	.03	.05	.13
21.60	.02	.10	.10
22.50	.03	.15	.12
23.40	.04	.13	.05
24.30	.02	.14	.13
25.20	.01	.11	.39
26.10	.02	.08	.57
27.00	.03	.07	.37
27.90	.04	.04	.17
28.80	.04	.02	.19
29.7-	.04	.04	.17
30.60	.02	.04	.24
31.50	.01	.10	.28
32.40	.02	.12	.25
33.30	.04	.08	.15
34.20	.05	.05	.12
35.10	.04	.06	.06
36.00	.02	.11	.04
36.90	.02	.11	.17
37.80	.04	.10	.37
38.70	.04	.08	.21
39.60	.05	.04	.14
40.50	.02	.01	.12
41.40	.01	.02	.05
42.30	.00	.03	.14
43.20	.01	.04	.35
44.10	.01	.07	.28
45.00	.01	.05	.15
45.90	.00	.04	.14

TETHOON FLIGHT 29
252 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL		LATERAL		VERTICAL	
LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	-.11	0	1.00	51	.26	0	1.00	51	.14
1	.96	52	-.13	1	.95	52	.26	1	.56	52	.09
2	.90	53	-.16	2	.85	53	.25	2	.49	53	.16
3	.85	54	-.19	3	.78	54	.23	3	.39	54	.09
4	.81	55	-.21	4	.73	55	.21	4	.28	55	.07
5	.77	56	-.22	5	.67	56	.19	5	.21	56	.04
6	.72	57	-.23	6	.59	57	.15	6	.17	57	-.01
7	.65	58	-.25	7	.52	58	.11	7	.10	58	-.04
8	.59	59	-.28	8	.45	59	.08	8	.04	59	-.06
9	.53	60	-.33	9	.38	60	.07	9	.03	60	-.09
10	.47	61	-.37	10	.32	61	.07	10	-.05	61	-.13
11	.40	62	-.42	11	.28	62	.07	11	-.11	62	-.18
12	.33	63	-.46	12	.23	63	.06	12	-.16	63	-.19
13	.25	64	-.48	13	.15	64	.03	13	-.18	64	-.26
14	.17	65	-.48	14	.06	65	-.00	14	-.26	65	-.23
15	.10	66	-.47	15	-.02	66	-.02	15	-.27	66	-.26
16	.02	67	-.46	16	-.09	67	-.04	16	-.28	67	-.31
17	-.07	68	-.45	17	-.16	68	-.08	17	-.38	68	-.27
18	-.17	69	-.43	18	-.25	69	-.14	18	-.38	69	-.20
19	-.27	70	-.41	19	-.31	70	-.16	19	-.38	70	-.21
20	-.31	71	-.39	20	-.35	71	-.18	20	-.40	71	-.21
21	-.34	72	-.37	21	-.39	72	-.19	21	-.34	72	-.15
22	-.37	73	-.35	22	-.40	73	-.19	22	-.32	73	-.12
23	-.41	74	-.32	23	-.40	74	-.16	23	-.24	74	-.12
24	-.44	75	-.28	24	-.40	75	-.13	24	-.21	75	-.03
25	-.47	76	-.25	25	-.40	76	-.12	25	-.10	76	-.07
26	-.48	77	-.21	26	-.40	77	-.12	26	-.15	77	-.07
27	-.49	78	-.18	27	-.42	78	-.10	27	-.12	78	.05
28	-.48	79	-.12	28	-.44	79	-.09	28	-.06	79	.11
29	-.47	80	-.05	29	-.44	80	-.09	29	-.02	80	.12
30	-.45	81	.01	30	-.42	81	-.08	30	-.05	81	.21
31	-.42	82	.07	31	-.40	82	-.06	31	.00	82	.26
32	-.40	83	.11	32	-.38	83	-.05	32	.02	83	.24
33	-.39			33	-.37			33	.07		
34	-.36			34	-.35			34	.11		
35	-.32			35	-.32			35	.13		
36	-.27			36	-.27			36	.11		
37	-.24			37	-.21			37	.10		
38	-.21			38	-.16			38	.20		
39	-.17			39	-.11			39	.14		
40	-.13			40	-.06			40	.16		
41	-.10			41	-.00			41	.15		
42	-.08			42	.06			42	.15		
43	-.06			43	.10			43	.08		
44	-.04			44	.13			44	.13		
45	-.02			45	.15			45	.11		
46	-.02			46	.15			46	.15		
47	-.03			47	.17			47	.17		
48	-.05			48	.19			48	.16		
49	-.07			49	.22			49	.15		
50	-.08			50	.24			50	.21		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
1.43	36.91	7.60	.14
2.14	38.08	12.51	.24
2.86	29.77	25.93	1.06
3.57	33.21	25.00	3.48
4.29	25.93	17.98	4.31
5.00	9.97	8.26	1.84
5.71	7.54	5.98	1.91
6.43	4.26	4.82	1.97
7.14	1.76	2.25	.81
7.86	1.51	1.43	.34
8.57	.87	1.77	.18
9.29	1.35	.83	.27
10.00	1.10	.70	.30
10.71	.45	.87	.37
11.43	.90	1.46	.32
12.14	1.13	1.34	.24
12.86	.80	1.40	.47
13.57	.90	2.04	.39
14.29	.65	1.17	.65
15.00	1.32	.76	.73
15.71	1.46	.53	.31
16.43	.68	.75	.14
17.14	.48	.53	.16
17.86	.68	.17	.16
18.57	.41	.11	.17
19.29	.19	.21	.29
20.00	.11	.29	.23
20.71	.25	.26	.21
21.43	.46	.21	.26
22.14	.39	.20	.23
22.86	.46	.16	.22
23.57	.54	.19	.16
24.29	.63	.10	.17
25.00	.34	.07	.22
25.71	.14	.13	.21
26.43	.12	.17	.23
27.14	.11	.20	.14
27.86	.10	.39	.13
28.57	.10	.71	.14
29.29	.11	.63	.14
30.00	.21	.37	.09
30.71	.27	.26	.08
31.43	.34	.24	.16
32.14	.39	.21	.14
32.86	.42	.20	.10
33.57	.45	.26	.09
34.29	.32	.33	.07
35.00	.46	.28	.11
35.71	.43	.13	.14
36.43	.17	.04	.05

TETROON FLIGHT 30
150 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL		LATERAL		VERTICAL	
LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	0	1.00	0	1.00
1	.82	1	.98	1	.60
2	.67	2	.94	2	.58
3	.52	3	.90	3	.54
4	.37	4	.84	4	.46
5	.19	5	.78	5	.43
6	.04	6	.72	6	.36
7	-.11	7	.65	7	.25
8	-.26	8	.59	8	.26
9	-.33	9	.52	9	.31
10	-.37	10	.46	10	.11
11	-.36	11	.41	11	.16
12	-.35	12	.36	12	.09
13	-.27	13	.32	13	.11
14	-.20	14	.29	14	.01
15	-.17	15	.28	15	.06
16	-.15	16	.26	16	-.01
17	-.14	17	.24	17	-.05
18	-.12	18	.20	18	-.04
19	-.10	19	.15	19	-.06
20	-.06	20	.08	20	.00
21	-.06	21	.00	21	-.12
22	-.06	22	-.08	22	-.11
23	-.04	23	-.15	23	-.23
24	-.03	24	-.21	24	-.13
25	-.02	25	-.25	25	-.25
26	-.01	26	-.28	26	-.29
27	-.01	27	-.31	27	-.23
28	-.01	28	-.34	28	-.28
29	-.02	29	-.36	29	-.25
30	-.05	30	-.38	30	-.31
31	-.11	31	-.39	31	-.30
32	-.18	32	-.39	32	-.27
33	-.23	33	-.40	33	-.14
34	-.21	34	-.41	34	-.19
35	-.20	35	-.41	35	-.08
36	-.20	36	-.41	36	-.15
37	-.20	37	-.44	37	-.11
38	-.14	38	-.46	38	-.06
39	-.12	39	-.48	39	.00
40	-.07	40	-.50	40	.06
41	-.00	41	-.51	41	.04
42	.03	42	-.51	42	.07
43	.08	43	-.52	43	.02
44	.14	44	-.51	44	.09
45	.16	45	-.50	45	-.00
46	.18	46	-.46	46	.08
47	.21	47	-.42	47	.04
48	.19	48	-.37	48	.07
49	.18	49	-.33	49	.18

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.40	1.48	12.38	14.57
3.60	2.36	6.76	18.48
4.80	1.37	2.42	9.01
6.00	1.85	2.46	7.63
7.20	1.38	2.20	2.40
8.40	2.07	1.59	4.70
9.60	1.25	1.86	3.20
10.80	1.14	1.24	2.3[illegible]
12.00	.81	.82	.92
13.20	.80	.41	.97
14.40	.43	.21	1.57
15.60	.17	.19	1.12
16.80	.07	.09	1.11
18.00	.07	.12	.9[illegible]
19.20	.08	.30	.31
20.40	.04	.33	.33
21.60	.04	.40	.51
22.80	.13	.16	.33
24.00	.20	.08	.25
25.20	.11	.10	.52
26.40	.11	.14	1.[illegible]
27.60	.08	.14	.69
28.80	.03	.17	.27
30.00	.04	.12	.17
31.20	.06	.07	.30
32.40	.03	.08	.47
33.60	.05	.14	.3[illegible]
34.80	.06	.13	.2[illegible]
36.00	.05	.06	.7[illegible]
37.20	.10	.05	1.14
38.40	.05	.05	.78
39.60	.02	.07	.51
40.80	.03	.07	.41
42.00	.04	.06	.66
43.20	.02	.06	.49
44.40	.01	.06	.[illegible]
45.60	.02	.06	.7[illegible]
46.80	.01	.06	.26
48.00	.04	.05	.1[illegible]
49.20	.05	.05	.0[illegible]
50.40	.04	.04	.1[illegible]
51.60	.09	.03	.18
52.80	.09	.02	.1[illegible]
54.00	.06	.03	.16
55.20	.05	.05	.3[illegible]
56.40	.04	.04	.52
57.60	.05	.03	.5[illegible]
58.80	.03	.03	.40
60.00	.04	.03	.70
61.20	.04	.01	.9[illegible]

TETHOON FLIGHT 31
160 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.06	0	1.00	51	-.07	0	1.00	51	-.02
1	.92	52	.03	1	.99	52	-.05	1	.75	52	-.10
2	.79			2	.97			2	.56		
3	.64			3	.94			3	.47		
4	.55			4	.90			4	.37		
5	.46			5	.86			5	.27		
6	.37			6	.80			6	.19		
7	.23			7	.74			7	.13		
8	.09			8	.66			8	.04		
9	-.02			9	.59			9	-.03		
10	-.09			10	.50			10	-.12		
11	-.14			11	.40			11	-.18		
12	-.21			12	.29			12	-.17		
13	-.23			13	.17			13	-.07		
14	-.21			14	.04			14	.01		
15	-.16			15	-.08			15	-.05		
16	-.11			16	-.19			16	-.08		
17	-.12			17	-.30			17	.06		
18	-.14			18	-.39			18	.20		
19	-.14			19	-.46			19	.25		
20	-.11			20	-.51			20	.27		
21	-.04			21	-.55			21	.28		
22	-.10			22	-.58			22	.23		
23	-.16			23	-.60			23	.21		
24	-.22			24	-.61			24	.13		
25	-.28			25	-.62			25	.07		
26	-.18			26	-.62			26	.06		
27	-.08			27	-.61			27	.09		
28	-.14			28	-.61			28	.08		
29	-.16			29	-.59			29	.07		
30	-.18			30	-.56			30	.05		
31	-.18			31	-.54			31	.05		
32	-.18			32	-.51			32	.06		
33	-.16			33	-.48			33	-.06		
34	-.14			34	-.46			34	-.14		
35	-.09			35	-.43			35	-.19		
36	-.02			36	-.40			36	-.08		
37	.04			37	-.37			37	-.09		
38	.08			38	-.33			38	-.09		
39	.07			39	-.28			39	-.10		
40	.04			40	-.23			40	-.12		
41	.04			41	-.20			41	-.09		
42	.07			42	-.17			42	-.12		
43	.11			43	-.14			43	-.09		
44	.14			44	-.13			44	-.10		
45	.13			45	-.12			45	-.07		
46	.12			46	-.12			46	-.07		
47	.11			47	-.11			47	-.05		
48	.10			48	-.09			48	-.04		
49	.09			49	-.09			49	-.02		
50	.09			50	-.09			50	-.01		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	V-ST
2.25	6.24	74.13	8.95
3.38	13.38	77.91	5.25
4.50	13.63	51.78	8.65
5.63	6.21	25.81	14.93
6.75	8.81	14.03	14.96
7.88	9.86	6.76	14.56
9.00	5.63	5.08	12.66
10.13	3.52	2.60	7.58
11.25	2.65	3.17	5.59
12.38	1.40	4.20	4.71
13.50	2.21	2.74	2.74
14.63	1.51	1.27	2.93
15.75	.54	1.39	1.91
16.88	.54	2.43	1.24
18.00	1.65	1.57	2.25
19.13	1.38	1.49	3.2
20.25	1.51	1.13	1.62
21.38	1.15	1.29	1.93
22.50	.93	1.17	1.42
23.63	1.75	.71	2.24
24.75	1.40	.51	2.16
25.38	1.05	.47	1.17
27.00	.70	.44	1.61
28.13	.59	.33	2.2
29.25	.49	.18	.98
30.38	.65	.54	.56
31.50	.71	.56	.39
32.63	1.49	.60	.52
33.75	1.52	.58	.44
34.88	.98	.48	.31
36.00	.71	.51	.57
37.13	.49	.26	.81
38.25	.35	.22	2.13
39.38	.35	.25	3.12
40.50	.34	.18	1.71
41.63	.32	.19	.61
42.75	.35	.13	.21
43.88	.31	.26	.32
45.00	.43	.34	.61
46.13	.55	.31	.41
47.25	.32	.23	.12
48.38	.24	.14	.14
49.50	.16	.11	.75
50.63	.16	.17	1.42
51.75	.30	.27	1.20
52.88	.36	.28	1.39
54.00	.24	.24	1.00
55.13	.22	.22	.78
56.25	.08	.14	.32
57.38	.08	.15	.46

TETROON FLIGHT 35
180 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	-.01	0	1.00	51	-.07	0	1.00	51	-.21
1	.91	52	.05	1	.95	52	.01	1	.89	52	-.20
2	.73	53	.13	2	.82	53	.09	2	.43	53	-.11
3	.49	54	.20	3	.63	54	.16	3	.16	54	-.08
4	.24	55	.26	4	.42	55	.22	4	-.13	55	-.01
5	.04	56	.30	5	.22	56	.25	5	-.30	56	.13
6	-.09	57	.31	6	.06	57	.28	6	-.40	57	.18
7	-.15	58	.29	7	-.05	58	.30	7	-.43	58	.22
8	-.14	59	.26	8	-.10	59	.32	8	-.34	59	.19
9	-.07			9	-.12			9	-.26		
10	.02			10	-.12			10	-.12		
11	.08			11	-.13			11	.04		
12	.11			12	-.15			12	.14		
13	.08			13	-.20			13	.17		
14	.02			14	-.28			14	.17		
15	-.07			15	-.36			15	.15		
16	-.15			16	-.43			16	-.00		
17	-.23			17	-.48			17	-.14		
18	-.28			18	-.49			18	-.24		
19	-.29			19	-.45			19	-.30		
20	-.26			20	-.38			20	-.25		
21	-.21			21	-.28			21	-.16		
22	-.15			22	-.18			22	-.07		
23	-.12			23	-.08			23	.04		
24	-.12			24	-.00			24	.07		
25	-.14			25	.05			25	.10		
26	-.22			26	.08			26	.08		
27	-.27			27	.09			27	.04		
28	-.30			28	.08			28	.01		
29	-.33			29	.07			29	.01		
30	-.32			30	.06			30	-.01		
31	-.28			31	.04			31	.02		
32	-.23			32	.02			32	.05		
33	-.18			33	-.00			33	.13		
34	-.13			34	-.03			34	.12		
35	-.08			35	-.05			35	.10		
36	-.06			36	-.08			36	.11		
37	-.04			37	-.10			37	.13		
38	-.04			38	-.11			38	.13		
39	-.02			39	-.12			39	.07		
40	-.01			40	-.12			40	.02		
41	.01			41	-.12			41	-.00		
42	.03			42	-.12			42	-.10		
43	.06			43	-.13			43	-.12		
44	.07			44	-.14			44	-.09		
45	.07			45	-.16			45	-.07		
46	.04			46	-.18			46	-.06		
47	.01			47	-.19			47	-.05		
48	-.02			48	-.19			48	-.04		
49	-.04			49	-.17			49	-.16		
50	-.04			50	-.13			50	-.18		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.00	12.04	11.82	.94
3.00	18.18	19.26	1.46
4.00	12.63	12.12	2.5-
5.00	4.79	19.92	5.41
6.00	6.60	2-.39	7.21
7.00	6.93	14.39	2.29
8.00	6.93	12.75	1.37
9.00	10.73	4.44	4.12
10.00	5.25	2.86	7.74
11.00	4.60	3.99	7.6-
12.00	7.57	6.58	13.22
13.00	8.93	6.7-	12.31
14.00	8.46	7.77	12.41
15.00	10.78	7.21	10.73
16.00	9.12	4.96	9.55
17.00	4.73	2.54	5.62
18.00	2.09	.98	2.2-
19.00	1.23	.54	1.04
20.00	.51	.16	.47
21.00	.61	.-9	1.19
22.00	.48	.17	.37
23.00	.74	.09	1.66
24.00	.62	.09	1.92
25.00	.15	.-9	1.36
26.00	.14	.16	.59
27.00	.09	.04	.9-
28.00	.20	.04	1.17
29.00	.29	.03	.41
30.00	.24	.03	.54
31.00	.23	.04	.79
32.00	.13	.03	.58
33.00	.14	.02	.94
34.00	.13	.03	.49
35.00	.16	.04	.56
36.00	.15	.02	.62
37.00	.14	.01	.62
38.00	.11	.01	.66
39.00	.08	.01	.27
40.00	.06	.01	.23
41.00	.05	.03	.21
42.00	.03	.02	.17
43.00	.05	.03	.46
44.00	.04	.05	.6-
45.00	.02	.04	.3-
46.00	.01	.02	.46
47.00	.03	.02	.41
48.00	.05	.02	.52
49.00	.06	.02	.66
50.00	.11	.01	.44
51.00	.14	.01	.21

TEHOON FLIGHT 36
195 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL

LAG	CORR	LAG	CORR
0	1.00	51	-.27
1	.97	52	-.33
2	.89	53	-.36
3	.78	54	-.38
4	.65	55	-.39
5	.52	56	-.39
6	.40	57	-.37
7	.30	58	-.35
8	.22	59	-.33
9	.16	60	-.32
10	.10	61	-.31
11	.04	62	-.30
12	-.02	63	-.29
13	-.10	64	-.28
14	-.17		
15	-.24		
16	-.29		
17	-.32		
18	-.33		
19	-.31		
20	-.28		
21	-.23		
22	-.18		
23	-.13		
24	-.08		
25	-.05		
26	-.03		
27	-.01		
28	-.00		
29	.01		
30	.04		
31	.08		
32	.12		
33	.16		
34	.19		
35	.20		
36	.20		
37	.18		
38	.15		
39	.11		
40	.07		
41	.05		
42	.04		
43	.03		
44	.02		
45	.01		
46	-.01		
47	-.04		
48	-.09		
49	-.15		
50	-.21		

LATERAL

LAG	CORR	LAG	CORR
0	1.00	51	.21
1	.89	52	.13
2	.66	53	.02
3	.44	54	-.08
4	.25	55	-.15
5	.10	56	-.18
6	.01	57	-.15
7	-.02	58	-.11
8	.02	59	-.05
9	.09	60	-.00
10	.18	61	.04
11	.25	62	.06
12	.26	63	.05
13	.19	64	.04
14	.06		
15	-.07		
16	-.17		
17	-.22		
18	-.25		
19	-.25		
20	-.22		
21	-.13		
22	-.02		
23	.07		
24	.09		
25	.04		
26	-.07		
27	-.20		
28	-.31		
29	-.39		
30	-.44		
31	-.43		
32	-.38		
33	-.29		
34	-.19		
35	-.12		
36	-.10		
37	-.11		
38	-.13		
39	-.15		
40	-.18		
41	-.21		
42	-.23		
43	-.21		
44	-.15		
45	-.06		
46	.05		
47	.14		
48	.20		
49	.24		
50	.25		

VERTICAL

LAG	CORR	LAG	CORR
0	1.00	51	.13
1	.82	52	.07
2	.47	53	.02
3	.03	54	-.03
4	-.40	55	-.07
5	-.71	56	-.12
6	-.80	57	-.13
7	-.69	58	-.12
8	-.44	59	-.10
9	-.10	60	-.06
10	.25	61	-.02
11	.49	62	.02
12	.57	63	.04
13	.51	64	.06
14	.31		
15	.06		
16	-.18		
17	-.35		
18	-.40		
19	-.34		
20	-.19		
21	.01		
22	.19		
23	.30		
24	.33		
25	.26		
26	.11		
27	-.08		
28	-.23		
29	-.32		
30	-.32		
31	-.24		
32	-.08		
33	.09		
34	.23		
35	.31		
36	.31		
37	.24		
38	.12		
39	-.03		
40	-.15		
41	-.24		
42	-.27		
43	-.23		
44	-.16		
45	-.06		
46	.03		
47	.11		
48	.16		
49	.17		
50	.16		

SPECTRAL ESTIMATES

FREQ (CY/MM)	LONG	LAT	VERT
1.85	56.92	4.54	.21
2.77	20.26	4.13	.24
3.69	41.07	2.66	.26
4.62	72.78	1.28	.49
5.54	47.34	.77	.56
6.46	15.06	1.40	.37
7.38	10.07	1.67	1.35
8.31	13.91	.76	2.52
9.23	7.42	.74	3.35
10.15	2.41	.71	3.10
11.08	4.81	.73	3.13
12.00	7.00	.73	3.49
12.92	4.84	.65	13.21
13.85	6.69	1.69	3 .57
14.77	6.81	2.58	33.78
15.69	6.95	2.67	31.56
16.62	4.12	.98	10.65
17.54	2.37	.37	5.58
18.46	2.47	.15	4.65
19.38	1.67	.12	3.64
20.31	1.43	.25	4.26
21.23	.87	.45	2.61
22.15	.45	.23	2.41
23.08	.22	.11	1.17
24.00	.14	.08	1.15
24.92	.23	.05	.57
25.85	.44	.05	.65
26.77	.46	.07	1.05
27.69	.29	.12	.79
28.62	.25	.14	.71
29.54	.38	.19	.85
30.46	.12	.08	.60
31.38	.07	.04	.32
32.31	.11	.13	.35
33.23	.31	.04	.17
34.15	.34	.02	.04
35.08	.14	.03	.04
36.00	.13	.02	.04
36.92	.07	.03	.06
37.85	.09	.03	.06
38.77	.17	.06	.06
39.69	.23	.05	.05
40.62	.12	.05	.04
41.54	.04	.04	.12
42.46	.13	.05	.19
43.38	.20	.04	.11
44.31	.10	.04	.11
45.23	.12	.03	.17
46.15	.04	.03	.15
47.08	.04	.03	.23

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AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.96	1	.95	1	.44
2	.91	2	.86	2	.07
3	.84	3	.74	3	.38
4	.76	4	.61	4	.23
5	.67	5	.49	5	-.08
6	.56	6	.38	6	-.06
7	.46	7	.29	7	.08
8	.35	8	.23	8	.05
9	.23	9	.17	9	-.10
10	.12	10	.12	10	.06
11	.01	11	.07	11	.19
12	-.13	12	.01	12	-.03
13	-.25	13	-.06	13	-.04
14	-.35	14	-.13	14	.11
15	-.44	15	-.21	15	-.02
16	-.50	16	-.29	16	-.16
17	-.52	17	-.36	17	.02
18	-.52	18	-.42	18	.14
19	-.52	19	-.45	19	-.06
20	-.50	20	-.48	20	-.01
21	-.48	21	-.50	21	.27
22	-.46	22	-.50	22	.09
23	-.43	23	-.50	23	-.17
24	-.39	24	-.50	24	-.05
25	-.34	25	-.49	25	.05
26	-.29	26	-.49	26	-.12
27	-.26	27	-.48	27	-.21
28	-.21	28	-.47	28	-.09
29	-.16	29	-.45	29	-.11
30	-.12	30	-.43	30	-.24
31	-.08	31	-.41	31	-.09
32	-.04	32	-.39	32	.04
33	-.01	33	-.37	33	-.10
34	.02	34	-.36	34	-.14
35	.06	35	-.34	35	.04
36	.10	36	-.32	36	.06
37	.13	37	-.30	37	-.12
38	.16	38	-.28	38	-.01
39	.19	39	-.25	39	.03
40	.22	40	-.20	40	-.22
41	.24	41	-.14	41	-.23
42	.25	42	-.07	42	-.01
43	.26	43	-.00	43	-.11
44	.25	44	.06	44	-.17

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	41.68	24.18	8.57
3.97	85.27	22.18	6.47
5.29	85.32	13.30	3.32
6.62	55.66	7.14	3.45
7.94	21.50	6.27	2.71
9.26	7.95	3.80	4.31
10.59	5.69	3.12	3.13
11.91	4.87	2.04	1.31
13.24	3.64	2.57	.38
14.56	4.00	1.05	1.01
15.88	4.44	1.47	3.44
17.21	3.73	1.11	2.61
18.53	3.26	.46	4.21
19.85	2.40	.37	1.55
21.18	1.74	.37	1.1
22.50	.64	.57	.51
23.82	.24	.25	.64
25.15	.46	.35	.85
26.47	1.02	.20	.53
27.79	1.32	.33	.64
29.12	1.15	.47	.71
30.44	.81	.32	.65
31.76	.61	.14	.51
33.09	.64	.18	1.05
34.41	1.01	.30	1.17
35.74	.72	.32	.57
37.06	.45	.27	.31
38.38	.38	.26	.52
39.71	.41	.15	.81
41.03	.29	.08	1.20
42.35	.17	.11	1.72
43.68	.07	.14	1.27
45.00	.05	.12	.64
46.32	.03	.08	.73
47.65	.10	.06	1.34
48.97	.30	.05	3.92
50.29	.65	.04	6.45
51.62	.67	.05	5.51
52.94	.50	.05	1.66
54.26	.51	.06	1.07
55.59	.41	.07	.91
56.91	.31	.04	.47
58.24	.31	.03	.67
59.56	.50	.02	1.52
60.88	.52	.03	1.66
62.21	.62	.05	.45
63.53	.71	.49	1.21
64.85	.50	.06	.95
66.18	.46	.04	.42
67.50	.55	.05	1.14

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AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.95	1	.96	1	.57
2	.87	2	.88	2	.53
3	.78	3	.77	3	.40
4	.70	4	.63	4	.28
5	.61	5	.48	5	.22
6	.52	6	.33	6	.14
7	.38	7	.18	7	-.03
8	.21	8	.04	8	-.10
9	.03	9	-.11	9	-.12
10	-.13	10	-.27	10	-.26
11	-.26	11	-.39	11	-.18
12	-.33	12	-.47	12	-.24
13	-.42	13	-.51	13	-.11
14	-.50	14	-.56	14	-.09
15	-.59	15	-.57	15	-.08
16	-.64	16	-.57	16	-.04
17	-.66	17	-.57	17	.04
18	-.65	18	-.56	18	-.01
19	-.64	19	-.54	19	.12
20	-.63	20	-.51	20	.10
21	-.63	21	-.47	21	.03
22	-.60	22	-.42	22	.15
23	-.57	23	-.34	23	.12
24	-.50	24	-.26	24	.10
25	-.44	25	-.19	25	.02
26	-.41	26	-.13	26	-.08
27	-.35	27	-.09	27	-.12
28	-.31	28	-.05	28	.00
29	-.28	29	-.02	29	-.10
30	-.21	30	.02	30	-.13
31	-.14	31	.05	31	-.20
32	-.08	32	.09	32	-.23
33	-.03	33	.11	33	-.17
34	.01	34	.13	34	-.17
35	.03	35	.15	35	-.17
36	.06	36	.16	36	-.03
37	.09	37	.17	37	-.05
38	.11	38	.18	38	.02
39	.13	39	.20	39	.08
40	.14	40	.23	40	.03
41	.16	41	.27	41	.15
42	.18	42	.30	42	.16
43	.18	43	.34	43	.11
44	.19	44	.38	44	.16

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	120.48	59.61	9.46
3.97	163.61	99.48	11.59
5.29	98.86	67.34	5.42
6.62	60.48	48.59	12.24
7.94	31.43	37.48	19.53
9.26	8.94	18.35	12.49
10.59	3.76	19.11	.76
11.91	2.42	6.27	5.94
13.24	4.01	4.42	3.79
14.56	5.56	3.61	2.27
15.88	3.10	2.44	1.23
17.21	2.06	1.76	1.09
18.53	2.69	.54	1.57
19.85	3.01	.79	.90
21.18	1.65	1.46	.77
22.50	.95	1.49	.64
23.82	2.35	1.74	1.18
25.15	4.76	1.40	1.79
26.47	4.94	1.23	1.42
27.79	3.14	.42	1.61
29.12	2.94	.28	1.34
30.44	2.61	.12	2.09
31.76	1.28	.46	1.44
33.09	.45	.07	.72
34.41	.38	.07	.56
35.74	.51	.06	.30
37.06	1.09	.09	1.45
38.38	2.48	.14	1.68
39.71	1.21	.29	.53
41.03	.69	.61	.27
42.35	.99	.58	.43
43.68	1.17	.58	.49
45.00	.60	.44	.44
46.32	.27	.25	.67
47.65	.19	.21	.41
48.97	.24	.06	.34
50.29	.32	.07	.54
51.62	.14	.13	.65
52.94	.17	.11	.56
54.26	.38	.11	.46
55.59	.37	.12	1.14
56.91	.28	.12	1.47
58.24	.16	.17	1.20
59.56	.45	.13	.54
60.88	.79	.09	.51
62.21	.62	.05	.95
63.53	.32	.05	2.32
64.85	.16	.06	2.49
66.18	.19	.07	1.36
67.50	.14	.08	.67

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AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.92	1	.86	1	.37
2	.86	2	.63	2	-.01
3	.79	3	.51	3	.26
4	.66	4	.32	4	.07
5	.53	5	.04	5	.02
6	.43	6	-.15	6	.02
7	.29	7	-.26	7	-.25
8	.18	8	-.39	8	-.29
9	.11	9	-.51	9	-.22
10	.03	10	-.54	10	-.19
11	-.02	11	-.45	11	-.22
12	-.04	12	-.32	12	-.24
13	-.07	13	-.21	13	-.17
14	-.07	14	-.09	14	-.20
15	-.06	15	.03	15	-.15
16	-.06	16	.07	16	-.00
17	-.04	17	.04	17	-.16
18	-.02	18	.03	18	-.00
19	-.03	19	.01	19	.14
20	-.07	20	-.07	20	-.01
21	-.16	21	-.18	21	.11
22	-.25	22	-.26	22	.12
23	-.33	23	-.33	23	-.04
24	-.38	24	-.37	24	.19
25	-.40	25	-.36	25	.35
26	-.44	26	-.32	26	.14
27	-.47	27	-.26	27	.06
28	-.49	28	-.19	28	.15
29	-.51	29	-.11	29	.12
30	-.49	30	-.04	30	.19
31	-.46	31	.02	31	.23
32	-.47	32	.10	32	-.03
33	-.43	33	.18	33	-.11
34	-.36	34	.27	34	.03
35	-.29	35	.33	35	.06
36	-.22	36	.36	36	.02
37	-.15	37	.36	37	-.25
38	-.10	38	.36	38	-.43
39	-.06	39	.38	39	-.24

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.98	100.65	11.24	2.70
4.46	80.44	14.03	5.34
5.95	48.65	6.68	29.42
7.44	43.99	12.33	37.62
8.93	27.49	17.89	14.45
10.41	29.72	10.89	2[illegible]
11.90	20.99	10.15	21.[illegible]
13.39	8.89	5.72	12.[illegible]
14.88	9.96	2.48	10.0[illegible]
16.36	11.14	.81	3.23
17.[illegible]	12.54	.61	2.09
19.34	10.47	.62	4.08
20.83	5.82	.49	4.06
22.31	4.00	.78	2.61
23.80	2.52	.66	1.2[illegible]
25.29	3.34	.85	1.36
26.78	2.94	1.13	2.[illegible]5
28.26	2.24	.84	4.46
29.75	1.21	.53	5.27
31.24	.80	.47	6.67
32.73	.94	.17	3.64
34.21	1.56	.19	9.23
35.70	1.86	.30	14.93
37.19	1.71	.29	7.7[illegible]
38.68	1.14	.13	4.[illegible]9
40.17	1.18	.22	5.18
41.65	1.11	.55	7.72
43.14	.61	1.[illegible]2	[illegible].[illegible]4
44.63	.63	1.20	5.26
46.12	.49	.77	7.1[illegible]
47.60	.37	.[illegible]2	3.44
49.09	.11	.66	6.66
50.58	.15	.65	7.41
52.07	.56	.49	3.45
53.55	1.12	.37	4.94
55.04	1.62	.27	[illegible].03
56.53	3.03	.19	9.91
58.02	3.44	.22	14.66
59.50	3.20	.26	17.24
60.99	2.24	.11	3.5[illegible]
62.48	1.65	.04	3.35
63.97	1.04	.05	6.47
65.45	.33	.08	[illegible].[illegible]5
66.94	.29	.05	5.12
68.43	.60	.03	6.59
69.92	.60	.01	3.2[illegible]
71.40	.24	.00	1.20
72.89	.06	.00	.30
74.38	.02	.00	.04
75.87	.00	.00	.0[illegible]

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AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.94	1	.95	1	.42
2	.86	2	.83	2	-.06
3	.80	3	.68	3	.13
4	.76	4	.51	4	.00
5	.58	5	.36	5	-.15
6	.46	6	.16	6	-.11
7	.33	7	.01	7	-.15
8	.15	8	-.12	8	-.00
9	-.04	9	-.19	9	.13
10	-.21	10	-.24	10	.30
11	-.32	11	-.26	11	.17
12	-.41	12	-.27	12	-.02
13	-.49	13	-.27	13	.00
14	-.53	14	-.27	14	-.02
15	-.55	15	-.27	15	-.12
16	-.57	16	-.28	16	-.22
17	-.58	17	-.28	17	-.32
18	-.58	18	-.28	18	-.28
19	-.57	19	-.27	19	-.02
20	-.55	20	-.26	20	-.03
21	-.54	21	-.23	21	-.04
22	-.49	22	-.20	22	.02
23	-.39	23	-.15	23	.15
24	-.32	24	-.10	24	.11
25	-.24	25	-.04	25	-.06
26	-.18	26	.04	26	-.04
27	-.01	27	.11	27	-.02
28	.00	28	.16	28	-.12
29	.05	29	.23	29	-.06
30	.10	30	.28	30	-.02
31	.10	31	.33	31	-.08
32	.09	32	.37	32	.02
33	.06	33	.39	33	.14
34	.07	34	.39	34	.07
35	.05	35	.38	35	-.02
36	.01	36	.35	36	.02
37	.01	37	.30	37	.11
38	.03	38	.21	38	.00
39	.02	39	.09	39	-.15
40	.02	40	-.04	40	-.11
41	.04	41	-.17	41	-.03
42	.05	42	-.30	42	-.03
43	.10	43	-.40	43	.01
44	.16	44	-.49	44	.10

SPECTRAL ESTIMATES

FREQ (CY/NM)	LONG	LAT	VERT
2.65	35.16	12.36	4.67
3.97	47.78	21.35	4.67
5.29	66.91	45.52	7.67
6.62	48.52	22.27	3.66
7.94	25.44	9.59	3.51
9.26	12.38	14.17	1.92
10.59	12.29	14.21	1.59
11.91	8.82	5.58	2.17
13.24	3.76	4.01	6.45
14.56	2.34	1.27	4.60
15.88	1.38	2.64	12.92
17.21	.86	1.66	8.77
18.53	1.02	1.36	4.97
19.85	2.94	.50	5.15
21.18	1.04	.38	2.50
22.50	.99	.35	1.69
23.82	.81	.65	1.66
25.15	.38	.17	1.21
26.47	.71	.26	.85
27.79	1.69	.18	1.16
29.12	.75	.16	1.15
30.44	.50	.10	.90
31.76	.41	.16	1.61
33.09	.31	.29	1.63
34.41	.35	.13	2.62
35.74	.38	.08	2.10
37.06	.35	.11	2.52
38.38	.34	.15	2.59
39.71	.55	.11	1.63
41.03	.61	.04	1.20
42.35	.61	.02	.72
43.68	.36	.05	1.16
45.00	.73	.07	1.24
46.32	1.18	.05	2.01
47.65	1.18	.07	4.64
48.97	.58	.03	3.23
50.29	.40	.02	1.41
51.62	.34	.03	2.14
52.94	.59	.05	4.61
54.26	.57	.05	3.54
55.59	.26	.03	3.76
56.91	.13	.04	2.76
58.24	.12	.03	2.56
59.56	.25	.03	1.91
60.88	.53	.06	2.95
62.21	.46	.02	1.22
63.53	.30	.01	1.04
64.85	.31	.01	1.14
66.18	.16	.01	1.79
67.50	.10	.02	2.15

TETROON FLIGHT 42
136 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL LAG	LONGITUDINAL CORR	LATERAL LAG	LATERAL CORR	VERTICAL LAG	VERTICAL CORR
0	1.00	0	1.00	0	1.00
1	.68	1	.97	1	.47
2	.33	2	.90	2	.09
3	.29	3	.81	3	.17
4	.13	4	.70	4	-.06
5	-.02	5	.57	5	-.06
6	-.01	6	.43	6	-.14
7	-.05	7	.29	7	-.18
8	-.04	8	.15	8	.09
9	-.01	9	.01	9	.04
10	.06	10	-.12	10	.02
11	.05	11	-.23	11	.05
12	-.01	12	-.32	12	-.08
13	-.06	13	-.39	13	-.00
14	-.11	14	-.46	14	-.01
15	-.10	15	-.50	15	-.08
16	-.09	16	-.53	16	-.08
17	-.12	17	-.55	17	-.15
18	-.07	18	-.55	18	-.09
19	.00	19	-.55	19	-.07
20	-.00	20	-.54	20	-.14
21	-.04	21	-.52	21	-.15
22	-.08	22	-.48	22	-.10
23	-.17	23	-.44	23	.00
24	-.24	24	-.38	24	-.05
25	-.21	25	-.33	25	-.13
26	-.17	26	-.28	26	.06
27	-.18	27	-.24	27	.16
28	-.13	28	-.21	28	.25
29	-.09	29	-.18	29	.25
30	-.14	30	-.16	30	.07
31	-.14	31	-.13	31	.06
32	-.12	32	-.09	32	.07
33	-.21	33	-.04	33	-.15
34	-.29	34	.00	34	-.39
35	-.27	35	.05	35	-.31
36	-.24	36	.11	36	-.06
37	-.21	37	.16	37	-.02
38	-.12	38	.20	38	-.00
39	-.04	39	.24	39	.02
40	.00	40	.27	40	-.00
41	.03	41	.29	41	.12
42	.01	42	.30	42	.06
43	-.07	43	.30	43	-.14
44	-.16	44	.27	44	-.11

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.65	3.67	25.45	4.76
3.97	1.29	30.41	2.91
5.29	1.25	35.99	4.33
6.62	1.68	17.64	9.33
7.94	2.42	7.61	6.14
9.26	2.02	2.63	2.51
10.59	1.42	1.14	1.13
11.91	1.08	.77	.91
13.24	1.32	1.05	11.09
14.56	1.16	.68	3.62
15.88	.73	.32	3.33
17.21	1.04	.17	7.59
18.53	1.63	.28	4.70
19.85	.58	.56	1.45
21.18	.47	.37	1.63
22.50	.38	.15	3.05
23.82	.12	.12	4.17
25.15	.25	.16	2.67
26.47	.45	.14	1.31
27.79	.17	.09	.73
29.12	.21	.14	.99
30.44	.31	.15	.81
31.76	.33	.05	.74
33.09	.48	.03	1.35
34.41	.51	.02	2.50
35.74	.37	.06	.75
37.06	.32	.12	1.45
38.38	.31	.11	4.20
39.71	.16	.18	4.27
41.03	.13	.10	2.03
42.35	.14	.13	1.35
43.68	.15	.06	2.16
45.00	.21	.05	3.28
46.32	.25	.03	1.84
47.65	.21	.02	1.49
48.97	.40	.05	1.87
50.29	.31	.07	2.00
51.62	.22	.03	.81
52.94	.17	.04	.79
54.26	.35	.06	2.04
55.59	.53	.07	2.53
56.91	.42	.03	1.17
58.24	.29	.01	.33
59.56	.16	.02	1.07
60.88	.13	.01	2.34
62.21	.17	.02	1.63
63.53	.08	.01	2.17
64.85	.06	.01	2.25
66.18	.05	.01	3.14
67.50	.05	.01	1.45

TETROON FLIGHT 43
166 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.42	0	1.00	51	.38	0	1.00	51	.29
1	.97	52	.39	1	.97	52	.32	1	.89	52	.23
2	.91			2	.89			2	.66		
3	.81			3	.76			3	.39		
4	.70			4	.62			4	.14		
5	.58			5	.47			5	-.10		
6	.46			6	.32			6	-.20		
7	.34			7	.20			7	-.30		
8	.23			8	.09			8	-.39		
9	.14			9	-.01			9	-.38		
10	.07			10	-.05			10	-.15		
11	.01			11	-.08			11	.02		
12	-.04			12	-.10			12	.19		
13	-.07			13	-.11			13	.33		
14	-.10			14	-.11			14	.40		
15	-.13			15	-.12			15	.41		
16	-.16			16	-.13			16	.36		
17	-.19			17	-.16			17	.27		
18	-.22			18	-.20			18	.15		
19	-.26			19	-.25			19	-.02		
20	-.30			20	-.31			20	-.17		
21	-.33			21	-.37			21	-.30		
22	-.37			22	-.42			22	-.37		
23	-.40			23	-.44			23	-.36		
24	-.42			24	-.46			24	-.36		
25	-.43			25	-.48			25	-.30		
26	-.44			26	-.49			26	-.21		
27	-.44			27	-.47			27	-.10		
28	-.44			28	-.45			28	-.01		
29	-.45			29	-.42			29	.06		
30	-.45			30	-.40			30	.09		
31	-.46			31	-.38			31	.08		
32	-.47			32	-.37			32	.04		
33	-.48			33	-.37			33	.02		
34	-.48			34	-.37			34	-.02		
35	-.48			35	-.37			35	-.09		
36	-.46			36	-.37			36	-.19		
37	-.43			37	-.34			37	-.27		
38	-.39			38	-.30			38	-.31		
39	-.32			39	-.23			39	-.33		
40	-.24			40	-.14			40	-.30		
41	-.15			41	-.05			41	-.25		
42	-.05			42	.06			42	-.20		
43	.06			43	.17			43	-.14		
44	.16			44	.28			44	-.06		
45	.25			45	.36			45	.06		
46	.33			46	.43			46	.16		
47	.39			47	.47			47	.23		
48	.43			48	.49			48	.32		
49	.44			49	.47			49	.35		
50	.44			50	.43			50	.32		

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.25	16.94	27.34	.84
3.38	24.81	34.92	1.24
4.50	11.23	14.04	.34
5.63	5.60	5.10	.31
6.75	6.19	9.23	.44
7.88	6.55	8.11	.14
9.00	1.84	4.26	.31
10.13	2.21	4.33	1.00
11.25	3.95	10.85	1.71
12.38	1.60	4.71	1.9
13.50	.65	1.10	1.33
14.63	.37	.71	.4
15.75	.23	.73	.45
16.88	.10	.67	.21
18.00	.14	.50	.21
19.13	.12	.34	.1
20.25	.04	.12	.04
21.38	.02	.16	.04
22.50	.02	.19	.03
23.63	.03	.13	.02
24.75	.03	.08	.05
25.88	.04	.06	.05
27.00	.03	.07	.0
28.13	.01	.03	.0
29.25	.01	.01	.06
30.38	.03	.01	.07
31.50	.02	.01	.07
32.63	.03	.01	.04
33.75	.04	.02	.0
34.88	.03	.02	.01
36.00	.03	.02	.0
37.13	.02	.02	.04
38.25	.02	.01	.0
39.38	.03	.02	.02
40.50	.02	.03	.03
41.63	.01	.02	.04
42.75	.01	.01	.02
43.88	.01	.01	.01
45.00	.00	.02	.02
46.13	.00	.02	.01
47.25	.00	.01	.02
48.38	.00	.01	.01
49.50	.00	.01	.01
50.63	.01	.01	.01
51.75	.01	.00	.02
52.88	.01	.01	.02
54.00	.00	.01	.01
55.13	.00	.01	.01
56.25	.00	.01	.01
57.38	.00	.01	.00

TETROON FLIGHT 44
195 DATA POINTS

AUTOCORRELATIONS

LONGITUDINAL				LATERAL				VERTICAL			
LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR	LAG	CORR
0	1.00	51	.03	0	1.00	51	-.33	0	1.00	51	.08
1	.97	52	.04	1	.97	52	-.33	1	.66	52	.06
2	.91	53	.06	2	.89	53	-.31	2	.52	53	.04
3	.84	54	.09	3	.76	54	-.27	3	.33	54	-.01
4	.75	55	.12	4	.60	55	-.21	4	.20	55	-.04
5	.65	56	.14	5	.42	56	-.13	5	.10	56	-.05
6	.54	57	.16	6	.25	57	-.03	6	-.04	57	-.10
7	.43	58	.18	7	.11	58	.07	7	-.16	58	-.10
8	.33	59	.19	8	.01	59	.17	8	-.23	59	-.10
9	.24	60	.20	9	-.05	60	.24	9	-.29	60	-.05
10	.17	61	.21	10	-.09	61	.30	10	-.24	61	.01
11	.11	62	.22	11	-.09	62	.34	11	-.18	62	.08
12	.07	63	.23	12	-.08	63	.38	12	-.12	63	.09
13	.04	64	.24	13	-.06	64	.38	13	-.12	64	.06
14	.02			14	-.03			14	-.15		
15	.01			15	.02			15	-.09		
16	-.00			16	.07			16	-.11		
17	-.01			17	.12			17	-.05		
18	-.02			18	.18			18	-.01		
19	-.03			19	.24			19	-.02		
20	-.06			20	.30			20	-.04		
21	-.09			21	.33			21	-.08		
22	-.13			22	.34			22	-.03		
23	-.19			23	.33			23	-.02		
24	-.25			24	.28			24	-.00		
25	-.32			25	.18			25	-.02		
26	-.39			26	.04			26	-.08		
27	-.45			27	-.10			27	-.08		
28	-.51			28	-.25			28	-.06		
29	-.55			29	-.37			29	-.08		
30	-.57			30	-.47			30	-.07		
31	-.58			31	-.55			31	-.07		
32	-.58			32	-.59			32	.01		
33	-.58			33	-.61			33	.03		
34	-.58			34	-.60			34	.06		
35	-.56			35	-.58			35	.09		
36	-.53			36	-.53			36	.06		
37	-.49			37	-.48			37	.12		
38	-.44			38	-.42			38	.10		
39	-.39			39	-.35			39	.06		
40	-.34			40	-.30			40	.02		
41	-.29			41	-.25			41	-.10		
42	-.23			42	-.20			42	-.11		
43	-.17			43	-.17			43	-.03		
44	-.11			44	-.14			44	-.01		
45	-.07			45	-.15			45	.01		
46	-.04			46	-.17			46	-.02		
47	-.03			47	-.21			47	.07		
48	-.02			48	-.25			48	.08		
49	-.01			49	-.29			49	.11		
50	-.00			50	-.32			50	.09		
51	.01										

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
1.85	27.40	[illegible]	.13
2.77	41.44	[illegible]	.52
3.69	18.33	[illegible]	1.24
4.62	[illegible]	1.37	.96
5.54	5.62	[illegible]	1.11
6.46	5.39	[illegible]	1.85
7.38	[illegible]	[illegible]	1.91
8.31	[illegible]	11.72	1.37
9.23	7.56	6.61	1.43
10.15	[illegible]	[illegible]	1.61
11.08	1.41	1.73	[illegible]
12.00	.95	1.64	.86
12.92	.90	1.70	.91
13.85	.82	1.64	1.43
14.77	.65	[illegible]	.93
15.69	.64	1.61	.61
16.62	.37	1.09	.28
17.54	.12	.61	.24
18.46	.17	.57	.24
19.38	.33	.65	.25
20.31	.16	.52	.19
21.23	.10	.45	.16
22.15	.07	.53	.17
23.08	.15	.41	.17
24.00	.20	.32	.09
24.92	.15	.36	.06
25.85	.13	.22	.07
26.77	.19	[illegible]	.11
27.69	.18	[illegible]	.13
28.62	.13	.29	.30
29.54	.05	.28	.41
30.46	.07	.32	.29
31.38	.13	.28	.23
32.31	.10	.25	.25
33.23	.05	.25	.22
34.15	.08	.23	.07
35.08	.11	.24	.08
36.00	.09	.30	.04
36.92	.04	.32	.15
37.85	.06	.28	.23
38.77	.07	.19	.06
39.69	.06	.17	.07
40.62	.04	.13	.14
41.54	.02	.14	.14
42.46	.04	.16	.07
43.38	.03	.17	.04
44.31	.03	.19	.11
45.23	.03	.21	.21
46.15	.08	.18	.11
47.08	.08	.15	.06

TETHOON FLIGHT 45
140 DATA POINTS

AUTOCORRELATIONS

LAG	LONGITUDINAL CORR	LATERAL CORR	VERTICAL CORR
0	1.00	1.00	1.00
1	.96	.94	.67
2	.86	.79	.56
3	.72	.61	.43
4	.58	.44	.31
5	.44	.27	.21
6	.30	.12	.14
7	.14	-.04	.03
8	-.01	-.19	-.03
9	-.13	-.32	-.06
10	-.23	-.43	-.10
11	-.30	-.50	-.04
12	-.33	-.53	-.01
13	-.35	-.52	.02
14	-.34	-.47	.03
15	-.33	-.41	.00
16	-.31	-.35	-.02
17	-.29	-.30	-.07
18	-.28	-.25	-.13
19	-.27	-.21	-.17
20	-.26	-.18	-.13
21	-.26	-.15	-.17
22	-.27	-.12	-.29
23	-.28	-.09	-.26
24	-.31	-.07	-.22
25	-.32	-.05	-.21
26	-.33	-.01	-.14
27	-.33	.04	-.09
28	-.32	.10	-.11
29	-.28	.17	-.03
30	-.22	.22	-.07
31	-.15	.24	-.02
32	-.08	.22	-.05
33	-.00	.17	-.15
34	.06	.09	.04
35	.12	.01	.07
36	.16	-.08	.11
37	.19	-.17	.09
38	.21	-.25	.07
39	.24	-.30	.00
40	.24	-.31	.01
41	.23	-.30	-.05
42	.21	-.27	-.11
43	.17	-.23	-.12
44	.12	-.18	-.13
45	.09	-.13	-.11

SPECTRAL ESTIMATES

FREQ (CY/HR)	LONG	LAT	VERT
2.57	22.68	3.01	7.28
3.86	34.11	5.62	12.16
5.14	27.93	14.38	9.02
6.43	30.14	14.73	6.34
7.71	19.16	9.28	4.97
9.00	18.67	7.79	4.44
10.29	15.68	4.81	6.77
11.57	9.67	2.89	4.73
12.86	5.79	1.96	3.85
14.14	5.97	1.19	3.41
15.43	3.51	.91	2.22
16.71	2.37	.71	1.44
18.00	1.07	.59	1.84
19.29	.66	.65	1.23
20.57	1.02	.62	.51
21.86	.52	.53	.66
23.14	.30	.53	1.01
24.43	.13	.56	1.47
25.71	.15	.64	2.62
27.00	.10	.12	1.17
28.29	.06	.14	.35
29.57	.03	.20	.40
30.86	.02	.15	1.91
32.14	.03	.07	.84
33.43	.07	.06	.82
34.71	.12	.10	1.07
36.00	.11	.14	.61
37.29	.04	.13	.64
38.57	.05	.11	.14
39.86	.12	.05	.21
41.14	.15	.06	.51
42.43	.08	.07	.84
43.71	.03	.06	.77
45.00	.04	.04	.82
46.29	.10	.06	.36
47.57	.10	.04	.32
48.86	.06	.04	.20
50.14	.02	.06	.46
51.43	.01	.06	.86
52.71	.02	.06	.74
54.00	.04	.05	.24
55.29	.05	.04	.14
56.57	.03	.05	.31
57.86	.02	.04	.43
59.14	.01	.02	.14
60.43	.01	.02	.44
61.71	.01	.01	1.10
63.00	.01	.01	.47
64.29	.04	.00	.23
65.57	.02	.01	.21